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ABSTRACT

A study was conducted (1) to describe the specific services of seven major career education information and technical assistance systems, including (but not limited to) content of each system, services offered, clients served, procedures for use, cost for each service, service area (geographic), response formats, response time, and utility of responses for clients served; (2) to compare and contrast the various systems in terms of the items in (1) above; and (3) to make recommendations on issues to be resolved and steps to be taken to assure maximum coordination and minimum overlap among these various systems. The systems included in this study are the National Center for Career Education (NCCE); the ERIC Clearinghouse for Career Education (ERIC/CE); the Research and Development Exchange (RDX); the National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE); the National Center for Research in Vocational Education (NCRVE) and Resources in Vocational Education (RIVE or AIM/ARM); the National Diffusion Network (NDN); and the National Technical Information Service (NTIS). The analysis and comparison of these systems were done from the point of view of the consumer, the career education practitioner or researcher. (This document contains descriptions of each system; comparisons of the systems by intended users, intents/purposes, and contents/methodology; and a discussion of issues, problems, and recommendations.) (BM)

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A COMPARISON OF CAREER EDUCATION INFORMATION AND TECHNICAL ASSISTANCE SYSTEMS

A Report Prepared for the
National Advisory Council for Career Education

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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List of Acronyms Used in this Report

AIM/ARM	Abstracts of Instructional Materials/Abstracts of Research Materials (Now RIVE, part of NCRVE.)
CVE	The Center for Vocational Education, Ohio State University (Now the National Center for Research in Vocational Education - NCRVE.)
ERIC	Educational Resources Information Center
ERIC/CE	ERIC Clearinghouse for Career Education (Includes Career Education, Vocational and Technical Education, and Adult and Continuing Education.)
EBCE	Experience Based Career Education
IRIS	Interagency Research Information Exchange
NCCE	National Center for Career Education
NCRVE	National Center for Research in Vocational Education
NDN	National Diffusion Network
NIE	National Institute of Education
NNCCVTE	National Network for Curriculum Coordination in Vocational and Technical Education
NTIS	National Technical Information Service
R&D	Research and Development
RDX	Research and Development Exchange
RIVE	Resources in Vocational Education (Formerly AIM/ARM.)
SSIE	Smithsonian Science Information Exchange
USOE	United States Office of Education

I. Introduction

Background and Purpose

According to the Scope of Work statement for this study, "considerable efforts have been launched to provide career education practitioners and researchers with up-to-date information and assistance about materials, training strategies, research projects, and other career education activities. The major national systems providing such help are the following: The ERIC Clearinghouse on Career Education (ERIC/CE); The Research and Development Exchange (RDX) of the National Institute of Education (as applied to career education); Abstracts of Instructional Materials/Abstracts of Research Materials (AIM/ARM); the National Center for Career Education (NCCE); the National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE); and the National Technical Information Service (NTIS) of the Department of Commerce. Since this study began, a contract has been awarded to the Center for Vocational Education to operate a National Center for Research in Vocational Education, and this new system will be absorbing AIM/ARM as well as serving as the base for the ERIC/CE Clearinghouse. The National Diffusion Network (NDN) has also been added to the study because it offers a number of career education programs for dissemination.

The Scope of Work statement continues: "Because of the large number of such assistance systems, questions have been raised by both practitioners and policy makers about the specific services offered by each, possible overlap of services, and/or possible ways to more effectively coordinate the services offered.

"The purpose of this paper will be to: (1) describe the specific services offered by each of the above-referenced systems, including (but not limited to): content of each system; services offered; clients served; procedures for use; cost for each service; service area (geographic); response formats; response

time; and utility of responses for clients served [see Chapter II]; (2) compare and contrast the various systems in terms of the items in (1) above; and (3) make recommendations on issues to be resolved and steps to be taken to assure maximum coordination and minimum overlap among these various systems." [see Chapters III and IV]*

Types of Information and Services. The analysis and comparison of the information/service systems listed in the Scope of Work for this study were done from the point of view of the consumer, the career education practitioner or researcher who comes in search of information or assistance on problems involving: (1) the identification, selection or development, and implementation of instructional materials; (2) the clarification of the nature of career education and what it means for local or regional programs (including needs assessment); (3) the development of a career education curriculum and the provision of inservice education for teachers and other personnel; (4) the carrying on of research or evaluation in some aspect of career education or a closely related area; (5) the making of policy and the organization of administrative procedures; and (6) the carrying out of a program of dissemination and utilization of programs and products related to career education. The basic question of this study is: for those seeking these kinds of services, is there a problem? If so, what is the nature of the problem, and what might be done about it?

Conceptions of Career Education. Users of the systems under study will come to them with varying degrees of clarity concerning what they view as the nature

*The Scope of Work statement also includes the following sentence: "Due to the limited nature of this award, the contractor will not be asked to evaluate the quality of services offered, although the use of existing data which may reflect on quality is certainly allowable."

of career education. These user views will probably converge on such matters as the importance of relating each individual's career development to his/her overall development and education, helping individuals build understanding of the various kinds of careers and occupations and how each fits into the economic system of our country, and aiding individuals in making appropriate career choices and obtaining necessary information and training. But user views of career education will probably diverge on such questions as whether it should apply to elementary and college/university programs; whether the term "career" includes nonpaid, volunteer, part-time work and leisure time activities, or only paid, full-time occupations; whether career education applies to professional as well as skilled (and other) occupations; and on just what the sequence of career development is (or should be).*

For the purpose of this paper, it is not necessary to select one particular view of career education, since the users of the systems under study hold varying views and since, among them, these systems should provide services that are appropriate to the full range of views. However, it is possible to list a number of career education elements which can be combined in various ways to yield alternative definitions of career education and which are the main topics or subdivisions of career education in its broadest dimensions. These main elements are:

A. Main Topic Areas

1. Self-Awareness, including aptitudes, skills and competencies, interests, attitudes and values.
2. Career Awareness, including knowledge of individual occupations and clusters, world of work as related to lifestyles.
3. Economic Awareness, including knowledge of the United States economy and the relationship of various occupations/clusters to it, employment and job trends.
4. Educational Awareness, including requirements for various occupations, educational opportunities and requirements, time, costs.

*See An Examination of the Definitions and Concepts of Career Education, National Advisory Council for Career Education, June 1977.

5. Other Related Competencies, including basic communication, academic, decision-making, interpersonal, and employability skills.
6. Career Preparation and Training for specific occupations, jobs, roles, and/or pasttimes, including vocational, technical, and professional education.

B. Career Defined As

1. "Totality of work one does in his or her lifetime," including unpaid, volunteer, student, and/or leisure time roles.
2. Occupations or paid employment, economic role.

C. Education Defined As

1. "Totality of experience through which one learns," including formal and informal, school- and other agency-related, by self, peers, parents, teachers, counselors, employers, and others.
2. Formal course work or training sessions.
3. Career-related topics infused in other subject areas and activities.
4. Career guidance courses and activities.

D. Levels

1. Pre-school and elementary (pre-Kindergarten through grade 6)
2. Junior high or middle school (grades 6 or 7 through 9)
3. Senior high school (grades 9 through 12)
4. Postsecondary, junior community college, trade school.
5. College, university, professional school.
6. Adult and continuing education.

Which combination of these elements makes up the definition of career education held by a particular practitioner or researcher depends on a number of factors, some of which are suggested below (see Users, Chapter III). However, since user (and information/service system) definitions do vary, it is important that all users be as clear as possible on (a) what they mean by career education, and (b) what views are explicit or implicit in the policies and practices of the systems to which they may go for help.

Procedures

Initial contacts with the directors of seven of the original eight systems were made in November 1977 by letter. (At the time of these initial contacts the contract for the National Center for Research in Vocational Education had not yet been awarded, but a copy of the Request for Proposal for that Center

was obtained.) The letter requested documents containing the information outlined in Figure 1. The documents obtained are listed in Appendix I. A follow-up telephone call was made to each system so that questions about the project could be discussed and so that a time for a site visit might be arranged. In two cases (ERIC/CE and NNCCVTE) the main contact person was the system director; in the other six cases the main contact was a person designated by the director. Contact persons are identified in Appendix II.

Some of the documents requested arrived before the site visits and so could be studied in preparation for these visits; other documents were studied at the time of the visits and subsequently. During January 1978, visits were made to NCCE in Missoula, Montana; ERIC/CE, AIM/ARM; NCRVE (which had by then been awarded), and the Resource Referral Service (RRS) of RDX at the Center for Vocational Education in Columbus, Ohio; and to the Washington, D.C., offices of NNCCVTE, RDX, NDN, and NTIS. A later visit was made to the NDN and RDX service units at the Far West Regional Educational Laboratory in San Francisco, and additional information was obtained by telephone and mail from the NNCCVTE State Liaison Representative and the NDN State Facilitator offices in Sacramento, California.

Analyses were made of the information gathered on each information/service system and this information was organized for presentation using an adapted form of the EPIE framework of instructional design. Under this framework, six dimensions of each system were described using a common language: subject or scope areas covered, intended users, intents and purposes (including rationale), contents (information and assistance offered, with special emphasis on career education), methodology (including means of user access, ways of collecting and delivering information and services), and provisions for evaluation (see Chapter II). A full draft of each of the descriptions was sent to the main contact

Figure 1

A Comparative Study
of
Career Education Information and Technical Assistance Systems*

Descriptive Information

A. Clients Served

1. What kinds of Career Education Practitioners do you serve?
Examples: Teachers, Teacher Aides, Administrators, Counselors, Curriculum and Materials Developers, and others at the elementary, secondary and higher education levels, including on-the-job training and employer-based programs.

2. What Geographic Areas do you service?
National scope, regional (which?).

B. Aims and Purposes

What are the main purposes for you system?
Collection and dissemination of information, provision of technical assistance, carrying out of research, or other.

C. Content of the System

What does your system offer to its clients?
Information on programs/curricula, instructional materials, teaching or training strategies, career information, results of research, etc.

Technical Assistance on curriculum development, counseling, materials development and selection, training, research, etc.

Research projects on career education programs, materials, teaching or training approaches, counseling, career trends, etc.

D. Procedures Employed

How do you make your information or technical assistance available?
How are contacts made with your clients, who takes the initiative, how?
What response formats do you use? - publications, searches, linking agents, consultants, workshops, newsletters, etc.
Do you follow-up with clients to see how useful your responses are for them, or what kinds of services they would like to have you provide.

*Systems include NCCE in Montana, ERIC Clearinghouse and AIM/ARM in Ohio, and NTIS (Dept. of Commerce), Nat'l. Network for Curriculum Coordination in Vocational and Techn'l. Education, Research & Development Exchange (NIE), NDN (OE), and the National Center for Research in Vocational Education.

person in each system to be checked for completeness and accuracy. After copies of these drafts were returned with corrections, the final versions of the system descriptions were prepared. These descriptions served as the basis for the comparisons and recommendations which are made in the final chapters of this report.

II. Descriptions of Seven Systems

As indicated above, the descriptions contained in this chapter were synthesized from information supplied by staff members of the various systems and the descriptions are presented in an outline based on the EPIE framework of instructional design.[43*]

Those readers desiring a brief overview of the systems are referred to Figure 2 at the beginning of Chapter III (page 49). The system descriptions contained in this chapter are located as follows:

System	Sponsor	Pages
National Center for Career Education (NCCE)	Office of Career Education, U. S. Office of Education	9 - 15
ERIC Clearinghouse on Career Education (ERIC/CE)	National Insitute of Education	16 - 22
Research and Development Exchange (RDX)	National Institute of Education	22 - 29
National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE)	Bureau of Occupational and Adult Education, U. S. Office of Education	29 - 33
National Center for Research in Vocational Education (NCRVE) [Now includes Abstracts of Instructional and Research Materials AIM/ARM]	Bureau of Occupational and Adult Education, U. S. Office of Education	33 - 38
National Diffusion Network (NDN)	Division of Educational Replication, U. S. Office of Education	38 - 44
National Technical Information Service (NTIS)	U. S. Department of Commerce	44 - 47

* Numbers refer to references in Appendix I.

NATIONAL CENTER FOR CAREER EDUCATION, Office of Career Education, U. S. Office of Education

NCCE Affiliate Center, University of Montana
612 Eddy Street, Missoula, Montana (406) 243 5262/6466.

Subject Areas: Career Education topics infused in main content areas of the school curriculum, early childhood through adult/continuing education. Curriculum and teaching guides, course descriptions, instructional materials for student use, inservice training in career education.

Intended Users: Career Education practitioners working with students from preschool through grade 17+ and decision/policy makers; educators and lay persons from state, intermediate and local education agencies, colleges and universities, adult education and vocational education institutions; business, labor, industry, and the professions; those involved with special populations (handicapped, residents of correctional institutions, etc.)

Intents/Purposes

The National Center for Career Education (NCCE) was designed to perform a service of professional assistance by linking individual/institutional needs to existing career education programs, to deliver career education assistance to practitioners by facilitating the flow of usable career education materials and resources across the nation, and to lend aid to career educators in utilizing these resources within their own particular circumstances -- thus enabling innovative programs to reach the students of the nation.

NCCE is organized to combine intensive programs of local staff training with access to a bank of curriculum materials in career education. NCCE aims to help training program participants develop and implement sequential curricula with a career education emphasis -- especially through the infusion of career education topics in regular school subject areas. Although the training for each institutional participant is based on common elements, each learning package is individually designed to specifically meet the institutional situation and needs. That is, the training is "localized" in terms of the institution's philosophy of education, student needs, and approach to career education (as clarified, often, in the training).

NCCE stresses the pooling and sharing-in-kind of instructional materials through a single national center, especially by encouraging training program participants and those who request materials searches to submit materials that they have developed in return for those they receive from the NCCE materials bank.

Contents

Bank of Instructional Materials. The NCCE database consists of a bank of over 7000 career education instructional materials for use in relating career education topics and concepts to instruction in various school subject areas. The contents of the bank include mainly non-commercial (and mostly teacher-made) learner materials, curriculum guides and manuals, and materials for use in assessing student progress or understanding. Other materials describe programs and activities (including project reports) and curriculum development and implementation strategies. NCCE does not actively computer bank such documents as research reports, journal literature, doctoral dissertations, lists of objectives or test items, vocational or occupational information (e.g., job trends, availability), or conference reports, although such items are often acquired and kept by the Center for reference.

The content of the databank is categorized under three main career education headings: (1) self-knowledge - attitudes and appreciations, decision-making skills, avocations, family relationships, and health; (2) community awareness - economic relationships; citizenship rights, duties and responsibilities; resources; and nations; and (3) world of work - career choice, employability skills, and vocational specialization, plus 15 U. S. Office of Education Career Clusters: business and office, marketing and distribution, communication and media, construction, manufacturing, transportation, agribusiness and natural resources, marine science, environmental control, public service,

health, hospitality and recreation, personal services, fine arts and humanities, and other.

The extent of coverage of these topics is divided, regardless of age/grade level, between: awareness (initial exposure, overview), exploration (middle-depth: simulation, trial runs, beginning skills practice), and preparation (in-depth coverage).

The materials computer banked by NCCE are available in a number of different formats:

(1) Initial Computer Search Listings - descriptions of materials (including title, author/publisher, components, subject area/s, content, methods, learning level, and evaluation -- where applicable). Titles proposed for 1978 include mathematics, social studies, science, and language arts, K-12; guidance, occupational education, safety education, and consumer education, K-12; special education, health and physical education, and fine arts, K-12; plus other topics such as special days, telephone use, and in/preservice, test and evaluation, and administration materials. [$36 for all 40 listings, or $1 each]

(2) Custom Computer Searches yield tailor-made lists of materials descriptions for particular user interests and needs. [$35 per search]

(3) Preview Copies of non-copyrighted materials. [1c per page for postage and handling, if client makes own copies; 10c per page if client keeps NCCE copies] Preview Copies of copyrighted materials are available for loan only.

(4) Sampler Libraries of Materials - sets of teacher-prepared materials from the NCCE collection which have been judged to be the best examples of ways to infuse career education into the regular classroom. Sampler Libraries are available for grades K-3, 4-6, 7-9, and 10-12 -- 50 materials in each grade level range covering 4-5 broad subject areas. [$90 per grade level range]

(5) NCCE Showcase Listing of exemplary materials is published regularly in the bimonthly newsletter, NCCE News.

Technical Assistance and Services. The NCCE inservice training modules cover four main processes: (1) the clarification of career education and the development of a working definition for the participating institution or community; (2) the localization of career education in terms of the institution's overall philosophy of education and student/classroom/career education needs, and the

formulation of career education goals; (3) the planning and development of a sequential curriculum using the career education goals as guides; and (4) the implementation of a program, including the identification, selection and production, and adaptation of resource materials, and the use of materials in the classroom to carry out units of instruction.

A variety of special services are also available through the Affiliate Center,* including technical assistance in the design, administration, and analysis of local needs assessments; orientation to career education and to available NCCE (and other) services and materials; program evaluation; and referrals (where appropropriate) to other career education resources such as ERIC/CE, NNCCVTE, NDN, and RDX, as well as the Experience Based Career Education models.

Methodology

User Access. Except where local people have agreed to act as contact persons, user access to the NCCE database and services is made directly through the Affiliate Center* in Missoula. The preferred route for obtaining instructional materials is through a training course, or at least through consultation with NCCE staff, such that the selection process takes place in the context of local curriculum development in career education. Materials are also available through individual computer searches which are carred out by Center staff, as well as through the Initial Search Listings, Sampler Libraries, and through a number of institutions participating in the Library Exchange program of the Center.

Instructional materials in the NCCE database are identified through computer search using descriptors that are indicative of client needs. The searches are carried out by NCCE staff and are not available elsewhere. A user's "Search

*The Affiliate Center in Missoula is, in effect, NCCE. The original plan for NCCE included several university-based centers around the country to provide services, but these were not funded.

Request Form" asks for a statement of the search problem/needs, a programmatic content description of subject areas involved (unit titles, topics, etc.), a description of the target population (grade level range, plus other relevant characteristics), career education concepts to be covered (awareness, exploration; self, community, world of work/career clusters), and other (media resources, constraints on media formats, dates, etc.). Descriptive printouts are supplied on computer paper. Once these descriptions have been reviewed by a user, copies of materials which fit the local situation can be borrowed for preview period of up to thirty days for the cost of postage. During the preview period, non-copyrighted materials may be reproduced by the previewer. Once previewed, materials can be kept for the cost of reproduction and handling (approximately 10c per page). For obtaining commercial and other copyrighted materials, the users are referred to the producer/distributor.

NCCE solicits contributions of instructional materials for its database in a number of ways -- from training course participants and consultation clients, as in-kind trades from those requesting materials directly and from Library Exchange participants, through the newsletter, NCCE News, by direct request from publisher or source, and through staff appearances at conferences and workshops.

Technical Assistance Activities. For the basic training program, arrangements are made by the Center staff with each user group (school district, state agency, or other institution) to present components which have been selected and tailored to user needs. The training sessions are usually held at the user site and may vary in length from a day's orientation session to a full sixty hour course, complete with academic credit, if desired, plus follow-up work to facilitate implementation. Over the past couple of years, at least five variations on the basic training program have evolved as the basic models upon

which NCCE plans training with different kinds of client groups:

(1) K-12 Training Model offers inservice training for elementary and secondary school staff members in the infusion of career education concepts into various subjects of the standard school program. Emphasis is put on clarification of career education, curriculum development consistent with the overall school program, selection/development/adaptation of instructional materials, and implementation in the classroom.

(2) Higher Education Model offers help in infusing career education concepts, career planning and counseling, and the development of work-entry skills into the programs of liberal arts institutions.

(3) Institutional Model has NCCE trainers working with state agencies and other organizations involved in the implementation of career education in the schools and entails training staff both to work in career education programs and to train others to develop such programs.

(4) Business/Industry/Labor Educator Model teams up personnel from the world of work with educators who help develop classroom usable instructional materials about their occupational areas, gain skills needed to become effective community resources for school career education programs (and to train colleagues to do likewise), and become oriented to classrooms and school systems.

(5) CETA (Comprehensive Employment and Training Act) Model involves NCCE staff working directly with students on career exploration during the summer.

Other activities include providing orientation/overviews on career education to various kinds of groups, including workshops and conferences of professional organizations; designing, instrumenting, carrying out, and helping communities analyze and interpret the results of career education needs assessments; and consulting with various agencies and institutions on the evaluation of career education efforts, as well as referring those who inquire at the Center to other resources, where appropriate.

NCCE publishes a bimonthly newsletter, NCCE News, to keep users in touch with various developments at the Center and in the field, to announce the acquisition of exemplary materials, and to solicit contributions of materials to the database. The NCCE staff also works regulary with a number of governmental, local district, university, and professional groups to facilitate the exchange of information about career education programs and resources. Staff members engage, in addition, in a number of outreach and promotional activities in order to inform potential users of the Center's resources. These activities include giving speeches, conducting workshops, and making other informal and formal presentations to individuals, agencies and professional groups.

Evaluation

At the time of this writing, no formal or systematic evaluation of NCCE has been made. However, some changes in procedures which took place during the first year of operation (1976-77) are reported in the NCCE Final Report[9] for that year and also in a descriptive report carried out by the Bureau of Educational Research and Field Services of Montana State University at Bozman, which is included as an appendix to that Final Report. The two main changes mentioned are interrelated, in part. One was the classification system (mainly the descriptors used) for computer storage of materials descriptions and their retrieval; the other was in the location and makeup of the training course, which was moved from the Missoula campus to local sites and broken into individual modules which permitted better tailoring to local needs. Other changes involved adjustments in the system for fielding requests for materials, and particularly the practice of responding to user requests outside of the context of the training program, an activity which was not part of the original plan for the Center. Most of these changes are said to have been made in response to feedback from clients.

ERIC CLEARINGHOUSE ON CAREER EDUCATION, Dissemination and Resources Group, National Institute of Education

ERIC/CE Clearinghouse, National Center for Research in Vocational Education, 1960 Kenny Road, Columbus, Ohio (614) 486 3655

ERIC Document Reproduction Service (EDRS), P. O. Box 190, Arlington, Virginia 22210

ERIC Microfiche Collections (Directory available from ERIC Processing and Reference Facility, 4833 Rugby Avenue, Bethesda, Maryland 20014

Subject Areas: Adult and Continuing Education, Career Education, and Vocational and Technical Education. Research and evaluation reports, theoretical and position papers, curriculum guides, resumes of journal articles, instructional materials (except nonprint), speeches, and program descriptions.

Intended Users: Teachers, students, school adminstrators, research and development specialists, professional organization and government agency staffs, college and university personnel, educational decision and policy makers, business and industry personnel, labor organization personnel, community representatives, parents, book publishers, and other "motivated educators willing to use some simple research tools."[13]

Intents/Purposes

ERIC was established in 1966 "for the purpose of providing the educational community with ready access to results of exemplary programs, research and development efforts, and related information that can be used in developing more effective educational programs."[17] ERIC was designed to provide a solid basis for the acceptance and use of worthwhile developments through a network of clearinghouses based in host organizations which are well-established and have good contacts with practitioners and researchers in their respective fields. Each clearinghouse has the responsibility for acquiring and selecting the documents in its scope area, as well as for cataloguing, indexing, and abstracting them for addition to a centralized database, so that all who use ERIC have access to data and products covering the full range of education.

ERIC/CE is responsible for documents in the areas of career education, adult and continuing education, and vocational and technical education. Specifically, ERIC/CE has as its purpose:

(1) The building of a database in these areas of documents which would not be available through standard sources and making them accessible to a wide range of practitioners.

(2) Carrying out an Information Analysis program in order to "transform this knowledge base from what is often an unknown, unmanageable, and unharnessed (as well as unaccessible) body of knowledge into an authoritative, substantive, and concrete body of facts on which to base educational programming."[15]

(3) Facilitating communication between practitioners, researchers, and policy makers in the three areas mentioned above as well as across the areas of education represented by the other clearinghouses.

Contents

The scope of interest of ERIC/CE includes all documents dealing with:

(1) Career Education, formal and informal at all levels, encompassing attitudes, self-knowledge, decision-making skills, general and occupational knowledge, specific vocational and occupational skills, and local, state, national and international policy.

(2) Adult and Continuing Education, formal and informal, including basic and literacy education, correspondence study, and all areas of in-service training relating to occupational, family, leisure, citizen, organizational and retirement roles.

(3) Vocational and Technical Education, including subprofessional fields, occupational psychology, occupational sociology, manpower economics, employment, industrial arts, and vocational rehabilitation (i.e., for the handicapped, mentally retarded, prisioners, discharged military, etc.).[17]

The ERIC Thesaurus[19] gives the scope of career education as "a comprehensive educational program that focuses on individual career development, beginning with grade 1 or earlier and continuing through the adult years." (page 26) Related terms included are: aerospace education, career awareness, career choice, career exploration, career planning, careers, occupational guidance, occupations, technical education, vocational development, and vocational education. Vocational education is defined as "formal preparation for an

occupation below the baccalaureate degree" (page 227), and the related terms given include: career education, commercial art, continuation [sic] education, industrial arts, job training, manpower development, skilled workers, and vocational counseling. Technical education is defined as "a type of preparation for occupations between the skilled trades and the professions." (page 215) Related terms include: career education, post secondary education, school shops, technical institutes, science education, prevocational education, and terminal students, plus the names of some nineteen specific occupations. Adult education includes the term "continuing education" in the Thesaurus and its related terms are: continuing education centers, continuing education units, correctional education, educational gerontology, high school equivalency programs, postsecondary education, professional continuing education, professional education special degree programs, and women's education. (page 5)

ERIC specializes in "fugitive" documents, especially noncopyrighted, unpublished educational materials such as project reports, speech texts, research findings, locally-produced instructional and curriculum materials,* and conference proceedings ich would be difficult to find through standard reference sources. Documents which are accepted for the ERIC system are assigned descriptors from the ERIC Thesaurus, abstracted by local clearinghouse staff, and then forwarded to the ERIC Processing and Reference Facility for inclusion in Resources in Education (RIE)[18] and to be photographed for the ERIC microfiche collection.

Each clearinghouse is also responsible for producing resumes of, and assigning descriptors to articles relevant to the subject areas for which it is responsible that have been selected from a number of professional journals. These resumes are published regularly in the Current Index to Journals in

*Although ERIC does index some copyrighted print documents, it does not handle nonprint materials (films, filmstrips, etc.).

Education (CIJE). ERIC/CE regularly screens a number of journals, among which are the following in career education: Career Education Digest, Career Education Quarterly, Journal of Career Education, and the Illinois Journal of Career Education.

User Services of the ERIC clearinghouses include Information Analysis publications, bibliographies, newsletters, and brochures of various types, in addition to the carrying out of searches of the ERIC database and making referrals to other resources in response to telephone and mail inquiries. Clearinghouse staff members also participate in a number of conferences and workshops each year to help people build skills in information retrieval and dissemination.

Information Analysis (IA) publications on selected issues and topics for each subject field are produced by clearinghouse staff and consultants throughout the United States. The list of IA publications for 1976-77 in ERIC/CE includes the following of direct relevance to career education, in addition to 13 titles dealing with adult/continuing, vocational/technical education, and cooperative education:

Research in Career Education: the State of the Art
Sex Fairness in Career Education
Career Education: the Role of School Related Youth Groups and Voluntary Organizations
Programs of Career Guidance, Counseling, Placement
Information Resources for Education: a Review

The 1977-78 series of IA publications includes the following:

The Career and Vocational Development of Handicapped Persons
The Career and Vocational Development of Bilingual Students
Affective Work Competencies
Counseling and Guidance of Students Entering Nontraditional Courses and Occupations
Women and the Skilled Trades
Women and their Preparation for Professional and Managerial Careers.

User service products of ERIC/CE also include a brochure, newsletter, and various bibliographies pertaining to topics which are the subject of frequent user queries. The ERIC/CE "Clipboard" series of leaflets includes the follow-

ing career education-related titles:

Career Education Journals and Newsletters (list of 12)
Education Resource Centers ("How-to" listing of resources)
Career Education: Middle/Junior High School (units of instruction list)
Career Education for the Handicapped (list of program descriptions)
Career Education Measurement/Evaluation (list of guides and monographs)

Other titles in this series include: What is ERIC? Searching ERIC, Submitting Documents to ERIC/CE, Preparing Documents for Submission to ERIC/CE, and ERIC Organizational Structure.

Methodology

User Access. There are four main avenues of user access to the ERIC documents and resumes on specific subjects or topics:

(1) Inquiries directed to the ERIC/CE Clearinghouse at the National Center for Research in Vocational Education via mail, telephone, or personal visit. Responses to such inquiries are made in the form of one or more of the User Services or Information Analysis products (see Contents), by carrying out a computer search of the database or by referral to another information source. A "Type 1" computer search yields card format bibliographies with author, title, year, and ED/EJ number listed for each relevant document going back four years [@ $15 per search]
"Type 2" searches are tailored more specifically to user needs and involve interactive scanning of ERIC and other relevant databases, yielding paper printouts with author, title, date, and ED/EJ (or other) numbers --and can include descriptors and abstract for each document identified. [Cost varies by length of search and type of output]

(2) Direct manual searches of issues of Resources in Education (RIE), which is available in many libraries and other microfiche collection centers, with the help of the ERIC Thesaurus, or of the Current Index to Journals in Education (CIJE), will yield much the same information on documents as a "Type 1" computer search (above).

(3) Once relevant documents have been identified, they can be obtained on microfiche in any one of the more than 650 plus locations (libraries, information centers, etc.) around the country which have ERIC microfiche collections. Some of these sites have equipment for duplicating microfiche or producing a paper copy from a microfiche projection. Those wishing to order microfiche or hardcopies of documents by mail can apply to the ERIC Document Reproduction Service (EDRS) in Arlington, Virginia.

(4) There are a number of agencies which are staffed and equipped to help users obtain information and documents from ERIC. Among these are regional and state curriculum coordinating units, R&D laboratories

and centers, intermediate education agencies, and a number of commercial vendors.

In addition to those which are sent in unsolicited from the field, documents are acquired by ERIC/CE staff seeking them out through a process of regularly checking on new research projects; monitoring conferences, seminars and workshops; establishing and maintaining a "surveillance network" among recognized scholars in the relevant subject fields; and regularly reviewing issues of selected periodicals. The ERIC Processing and Reference Facility also has "standing agreements" on acquisitions with government agencies and other producers of documents. Documents acquired by the Facility are sent to the appropriate clearinghouses.

Each document that comes to the clearinghouse is first evaluated by a subject matter specialist to determine whether its content is relevant to the ERIC/CE scope of interest and whether it meets certain quality criteria. These criteria involve such matters as contribution to knowledge, significance and relevance, newness and innovativeness, effectiveness and thoroughness of presentation, and reproducibility. Those documents accepted for the main ERIC collection are assigned appropriate ERIC Thesaurus descriptors (for indexing and retrieval); a brief resume or abstract (of approximately 200 words) of each is written as part of its RIE entry. Journal articles are similarly assigned descriptors and annotated. The descriptive entries for each document and journal article, together with a copy of each document, are sent to the ERIC Processing and Reference Facility for inclusion in RIE, CIJE, and the ERIC computer bank and microfiche collection.

Evaluation

A number of external evaluations of the ERIC system have been carried out. Among these is the Report and Guidelines on Improving the Retrieval of Product

Information from ERIC.[19]

Internally, ERIC/CE evaluates the quality of its service to users in three main ways. Informal feedback is regularly obtained via user letters, which are filed and stored; postcard feedback forms are sent to all users for whom the clearinghouse provides computer searches (asking how search services were learned about, how satisfactory they were, whether response time and cost were reasonable, how search might be improved, and whether would use service again); and formal input is obtained from the ERIC/CE Advisory Committee.

Additionally, the entire ERIC system has a regular system for reviewing and revising or adding to the thesaurus descriptors. Some changes result from new developments or interests in the various fields; others arise from difficulties encountered in indexing and searching. The entire system is under a process of continuous review so that services to users can be expanded and built upon an enduring database.

RESEARCH AND DEVELOPMENT EXCHANGE, Dissemination and Resources Group, National Institute of Education.

Regional Exchanges (serving 42 states, as indicated:
Appalachian Educational Laboratory, Inc., Charleston, West Virginia.
[Alabama, Florida, Kentucky, Mississippi, North Carolina, Missouri, Ohio, and Wisconsin]
CEMREL, Inc., Kansas City, Missouri. [Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, Wisconsin]
Mid Continental Regional Educational Laboratory, Kansas City, Missouri.
[Kansas, Nebraska, South Dakota, North Dakota, Colorado, Wyoming]
Northwest Regional Educational Laboratory, Portland, Oregon.
[Alaska, Idaho, Montana, Oregon, Washington]
Research for Better Schools, Philadelphia, Pennsylvania.
[Delaware, Maryland, Pennsylvania, New Jersey]
Southwest Educational Development Laboratory, Austin, Texas.
[Arkansas, Louisiana, New Mexico, Oklahoma, Texas]
SWRL Research and Development, Los Alamitos, California
[California, Nevada, Utah, Arizona]

Subject Areas: Results of educational research and development (R&D), especially federally sponsored; concerns of educational practitioners relevant for R&D; all instructional areas, administration, instructional materials and programs, especially high priority areas of basic skills in language arts and mathematics and competency-based education.

Intended Users: Educational practitioners - teachers, principals, and specialists in school systems; intermediate service agencies, state education agencies. Researchers and developers and policy makers, including those in federal, state, local, and university-based educational organizations, laboratories and centers. Disseminators, information specialists, linking agents at the local, intermediate, state, regional, and federal levels. Funding agency personnel -local, state and federal.

Intents/ Purposes

The Research and Development Exchange (RDX) was established to create an exchange of information whereby researchers and developers communicate the results of their work to educational practitioners and, simultaneously, practitioners relay information about their needs to researchers, developers, and policy makers. Thus, RDX encourages practitioners to influence future research and development policies and programs while it informs them about available federally funded research and development (R&D) outcomes. RDX goals are to:

(1) Develop, with existing linking and dissemination organizations and personnel, ways of coordinating dissemination activities and resources through the sharing of information regarding alternative dissemination strategies and human and material resources.

(2) Increase the understanding and use of R&D outcomes by organizations and personnel who work with practitioners by (a) providing consumer-oriented information that facilitates comparison of R&D outcomes and matching them to specific needs, (b) providing assistance in the use of this information, and (c) making federally supported R&D outcomes more accessible.

(3) Increase shared understanding and application of information about practitioner needs and efforts, and to stimulate efforts to meet those needs by those involved in educational R&D, in order to improve educational practice through: (a) providing information about practitioner needs and current activitities to help the R&D community make decisions regarding the production and delivery of R&D outcomes, (b) providing information about dissemination and

use of R&D outcomes, and (c) helping the R&D community explore the implications of information about practitioner needs and apply this information to their work.

Contents

Information and Products. The RDX effort is concerned with the following kinds of research and development (R&D) outcomes: (1) the findings of specific studies, (2) concepts and generalizations which structure and summarize current understanding, (3) educational practices which operationalize, or apply, current understandings in specific settings (including locally developed R&D-based practices), and (4) products which help others adopt, adapt, and implement spcific R&D-based practices. R&D outcomes are defined as "those products, skills, programs, instruments, teaching and management methods and techniques, and concepts that are produced by disciplined inquiry involving activities normally considered part of the R&D process such as conceptualizing, hypothesizing, developing models, field testing, data-gathering, analyzing and evaluating."[23] An R&D product is defined as "a tangible, transportable, self-contained outcome of the R&D process [which involves] a sequence of activities rooted in the scientific method in which research findings or relevant theory is translated into usable artifacts. The translation is then subject to evaluation and revision to ensure that the product meets the needs for which it was designed."[23]

Research materials include reports and presentations, books and monographs, journal articles and book chapters, workshops and briefings, theses and dissertations, audiovisual materials, colloquia and seminars, and ERIC (and other) citations. Practitioner products include instructional materials for students, administrator and teacher training materials, replicable program models, guidelines and handbooks, and resource guides and catalogs.

Examples of R&D products which have particular relevance for career education practitioners can be found in the Catalog of NIE Products[25] in a Volume I section titled "Education and Work (Career Education)" (pages 553-760):

(1) Education and Work: Adminstration and Staff Development.
- 17 products from the Center for Vocational Education, 12 of which are intended for use in staff development in career education or a closely related area;
- 7 products from the ERIC/CE Clearinghouse (DeKalb) dealing with USOE Career Clusters, the use of career education products, and topics in vocational and continuing education;
- 1 product of the ERIC Clearinghouse on Teacher Education from its Project on Career Education;
- 1 product of the Appalachian Regional Commission and the University of Kentucky on career education in the elementary school;
- 1 product of the EPIE Institute on the selection and evaluation of career education instructional materials.

(2) Career Awareness and Exploration
- 23 teacher guides from the Center for Vocational Education dealing with such topics as measurement and related careers, economic and career awareness, information on specific careers, and career exploration in the life and physical sciences;
- 1 high school text from Northwest Regional Laboratory (and Prentice-Hall) on computer careers;
- 1 product titled "Career Education Concept Lesson Cards" from the New Hampshire Union 58 Experimental Schools Program.
- 1 product from the Mountain Plains Education and Economic Program on basic communication and mathematics as part of occupational training.

(3) Career Counseling
- 12 products from the Education Development Corporation (EDC) Home/Community-Based Career Education Model III;
- 2 Appalachian Educational Laboratory products on career guidance (including student materials);
- 9 products from the Center for Vocational Education, some from their CPSS (Career Planning Support System), one on career information for career education programs, one on problem solving for students leaving high school, and five on self-understanding;
- 1 product from ERIC/CE (DeKalb) on the computer and guidance;
- 3 products from ERIC/CAPS (Counseling and Personnel Services) on career guidance;
- 2 products from the American Institutes for Research (AIR), their Career Data Book and Project TALENT Profiles;
- 1 product from the University of Wisconsin on Age-Income graphs for 336 careers;
- 1 product from Johns Hopkins University called "Self-Directed Career Program" (SDC), a vocational guidance system for students and counselors.

(4) Work-Experience-Based Programs
- 4 descriptions of the Experience-Based Career Education (EBCE) program models from four national laboratories: Research for Better Schools, Northwest Regional Educational Laboratory, Appalachian Educational Laboratory, and Far West Laboratory;
- 1 product from the University of Illinois on Management Internships;
- 3 products from the Mt. Plains Education and Economic Development Program for individualized approaches to instruction for family, building trades and services, and office education.*

Services. The Research and Development Exchange (RDX) is one part of a "nationwide dissemination configuration" which was recommended by the 1977 Dissemination Forum. Other elements of this configuration include ERIC, the National Diffusion Network (NDN) and the Joint Dissemination Review Panel (JDRP), and other efforts to identify and disseminate "effective" practices; resource centers with information specialists to help practitioners in some state education agencies, intermediate service agencies, universities, and larger school systems; and special projects (e.g., the NIE R&D Utilization projects) which have been designed to help practitioners deal with special problems (e.g., student performance in basic skills or career preparation) by considering and using R&D outcomes. The seven regional exchanges of RDX are set up to promote and facilitate a two-way exchange between practitioners and R&D specialists.

In addition, the four Central Support Services are available to the RDX regional exchanges, as well as to other interested dissemination groups:

Dissemination Support Service (Northwest Regional Laboratory) provides training, consultation on training, and other related support for individuals responsible for dissemination activities in states, service areas or local school districts.

R&D Interpretation Service (CEMREL, Inc.) is experimenting with transforming R&D-based knowledge into forms that can be used more readily by educational practitioners (including identification of existing interpretive literature) in order to provide information which will

*The NIE Catalog, published in 1975, is rapidly becoming dated. Some of the products listed may be unavailable, and others are now available through commercial publishers.

help educators make choices among an array of materials and practices.

Resource and Referral Service (National Center for Research in Vocational Education) is building a data bank of available information resources. Included in this bank will be data about organizations and people who produce, are knowledgeable about, or disseminate R&D outcomes -- especially in the basic skills and competency-based education areas. (A number of "RRS Minilists" of resources have already been published.)

System Support Service (Far West Regional Educational Laboratory) facilitates the operation of the total R&D Exchange and coordinates the efforts to inform the R&D community of practitioner reactions and needs.

Methodology

User Access. RDX consists of four Central Services and seven Regional Exchanges working through 42 cooperating state education agencies. Activities are carried out primarily through linking agents affiliated with the state agencies (SEAs); that is, each cooperating SEA has one or more contact persons to whom local educators can go when in need of resources, either by telephone or mail. The linker, in turn, answers the user questions or refers them, as necessary to a Regional Exchange or Central Support Service.

The Regional Exchanges may engage in any of the following activities:

Identification of regional and extra-regional R&D information systems of potential usefulness to state and intermediate linkers;
Identification of linker training support needs in the region;
Design and conduct of model training programs to meet linkage training needs;
Assistance of users in the analysis or evaluation of existing dissemination programs and activities;
Assistance to users in conducting their own needs assessments and in making examinations of alternative models and strategies for decision-making;
Collection and preparation of selected R&D consumer information materials to meet high priority needs of regional workers;
Distribution of consumer education materials;
Establishment and maintenance of small-scale regional collections of R&D products in priority areas;
Collection of data on regional educational needs identified by SEAs from statewide assessments or information requests;
Synthesis of data on educational needs for reporting to System Support services, NIE, and other relevant groups.

Activities of the Resource Referral Service include:

Obtaining and compiling comprehensive information about resources, organizations, and personnel which will help the regional exchanges;
Providing services to the regional exchanges involving information about available resources and assistance in making contacts;
Identification of materials and information systems which provide information on alternative educational programs and products;
Development of model products which pull together information on R&D outcomes and product alternatives in priority areas.

The Research and Development Interpretation Service will be:

Identifying materials and information systems which provide information on alternative educational programs and products;
Developing model products which pull together information on R&D outcomes and product alternatives in priority areas.

Additional RDX activities include the synthesizing of regional data and recommending priorities for RDX, development of a tracking system for R&D projects and maintenance of a file of information on NIE and non-NIE R&D outcomes in priority areas, assisting users in the analysis or evaluation of existing dissemination programs and activities, and collecting information about the extent of use and usability of R&D products.

Evaluation

No systematic external evaluation of RDX was indentified in the course of this study.

Internally, there are two main areas of concern. One has to do with how best to disseminate R&D outcomes to educational practitioners and how best to "feedforward" information about practitioner needs and experiences to researchers, developers, and R&D funding agencies. Related to this area is R&D tracking, or the process of determining patterns and locations of R&D outcome utilization and its impact within the education community. A second area of concern has to do with ways of identifying "effective" practices which have been developed through R&D effort. In one RDX document, an exemplary practice is defined as "a new or outstanding practice developed in a local

education setting. A practice is exemplary to the degree it meets five criteria: (1) is viewed by practitioners as worth initiating, (2) is successful/effective, (3) is exportable, (4) is reasonable in cost, time and personnel required for implementation, and (5) has been systematically documented."[23] For example, the Joint Dissemination Review Panel[35] reviews evidence of the effectiveness of educational practices developed with federal funds, and approval by the panel makes a product eligible for financial assistance aimed at widespread dissemination by NIE or USOE (as with the National Diffusion Network programs).

NATIONAL NETWORK FOR CURRICULUM COORDINATION IN VOCATIONAL AND TECHNICAL EDUCATION, Bureau of Occupational and Adult Education, U. S. Office of Education

Curriculum Coordination Centers (serving states and territories indicated):
Northeast, Trenton, New Jersey. [New Jersey, Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, Virgin Islands, and Puerto Rico]
Southeast, Mississippi, Mississippi. [Alabama Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee]
East Central, Springfield, Illinois. [Delaware, District of Columbia, Illinois, Indiana, Maryland, Michigan, Minnesota, Ohio, Pennsylvania, Virginia, West Virginia, Wisconsin]
Midwest, Stillwater, Oklahoma. [Arkansas, Iowa, Kansas, Louisiana, Missouri, Nebraska, New Mexico, Oklahoma, Texas]
Northwestern, Olympia, Washington. [Alaska, Colorado, Idaho, Montana, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming]
Western, Honolulu, Hawaii. [American Samoa, Arizona, California, Guam, Hawaii, Nevada, Trust Territories of the Pacific, Mariana Islands]

Subject Areas: Vocational and technical education, including career education. Primary focus on facilitating the sharing and coordination of materials and curriculum development efforts within states and territories and nationally.

Intended Users: Vocational educators in schools, junior colleges and community colleges, colleges, universities, and adult education centers; teachers and administrators of secondary, postsecondary, and adult vocational programs in need of instructional materials and program guides, and limited technical assistance.

Intents/Purposes

The National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE) was developed to facilitate instructional management decisions with which vocational and technical educators are typically confronted. These educators face alternatives for action; they need to share expertise, ideas, and materials, and to gain expanded insights into recent developments in their own states and around the nation; and they need instructional materials. To fill these needs locally requires a substantial amount of time and money. The Network has been set up to systematically inform instructors, administrators, and curriculum support personnel of vocational and technical education curriculum activities and to share with them the fruits of local, regional, and federal curriculum and materials development efforts from all around the country.

The objectives of the NNCCVTE are (1) to improve curriculum capabilities and services at the state level, (2) to minimize duplication of effort in curriculum development and materials production activities, and (3) to improve curriculum management resources for federal and state decision makers.

Contents

The National Network and its regional centers provide a system through which information about instructional materials and other documents is located and made available to practitioners. In addition, some of the state education agencies and universities affiliated with NNCCVTE maintain curriculum resource laboratories or lending libraries where materials collected from programs in their area are housed, lent out, and sold at cost. Regional center staffs and State Liaison Representatives can also put practitioners in touch with the resources of other information agencies such as ERIC/CE, NCRVE, and NCCE.

Indications of the kinds of career education materials that can be identified through NNCCVTE linkages can been seen in the following examples:

The Curriculum Catalog, published by the Northwest regional center contains 118 titles under the heading of "Career Education," which range from suggestions for individual activities through student booklets and filmstrip sets to teacher and curriculum guides and lists of community resources. Also included are a listing of commercial materials catalogs, with a number of career education titles, and a listing of Lending Library holdings of documents that are available from the center's Olympia, Washington, address. A good many of the titles listed under occupational cluster headings in both the main catalog and the library listings appear to be relevant for career/occupational awareness purposes in career education.

Curriculum Materials 1978, published by the New Jersey Vocational-Technical Curriculum Laboratory and distributed by the Northeast regional center, contains a section on Career Education which includes items on career awareness, learning stations, reading-related activities, work books and guides, bibliographies of resource materials and teacher training titles for the elementary grades. There are also titles dealing with career exploration and training for high school.

An issue of the Newsletter put out by the East Central regional center contains an annotated bibliography of curriculum materials in the arts and humanities, career guidance and exploration and model individualized learning packages.

California affords an example of information services in an individual state. The Spring-Summer issue of "Selected Publications" from the State Department of Education contains a section titled "Vocational, Homemaking, Industrial Arts, Career Education" in which are listed the following:

California State Plan for Vocational Education (1976)
Career Education: A Position Paper on Career Development and Preparation (1974)
Career Preparation Microfiche Collection Catalog (1975)*
Implementing Career Education series: An Administrator's Handbook (1976), Community Involvement (1977), Concept and Process (1977), Exemplary Practices (1977), Instructional Strategies Guide (1977), and Nine Model Practices (1976)
Sources of Information in Career Education: An Annotated Bibliography (1975)
Suggested Guidelines, Goals and Objectives, Work Experience Education (1974).

Services. The main functions of the NNCCVTE are to provide liaison among

*This document was prepared by another information source, the San Mateo County Educational Resources Center (SMERC), an intermediate service agency located in Redwood City, California.

various resource groups in vocational and technical education and to coordinate the efforts of these groups nationally. The Network is capable of linking with other information systems, including ERIC/CE, RDX, NDN, and NCCE, in order to provide users with a maximum range of leads to available resources. Activities of the Network include the development of common standards for curriculum development and the promotion of cooperative development of materials in order to facilitate sharing and minimize duplication of effort. Regionally, technical assistance is provided in curriculum development and management. Arrangements are also made for inservice training and for field testing and evaluation of programs and materials. Local adoption and adaptation of materials already developed are encouraged.

Methodology

User Access. Contact with the National Network is made through the user's State Liaison Representative (SLR) and the Curriculum Coordination Center for the region in which his/her state or territory is located. Each of the six regional centers develops its own program of work. It may conduct curriculum awareness workshops, produce special bibliographies, issue catalogs or information sheets about available materials, publish a newsletter, and/or refer users to other information sources. All centers can initiate national and regional searches to put local developers in touch with appropriate materials and programs. All centers also conduct informational meetings for SLRs and initiate concerted attention to such priorities as sex equity, manpower data analysis, and emerging or changing occupations.

Evaluation

There has been no formal evaluation of the NNCCVTE, the regional centers, or the implementation services of the State Liaison Representatives. However,

records have been kept of Network accomplishments and impact over the last few years. These include: state agreement on common standards for curriculum development which include standardized formats to increase the transportability of materials and programs; inservice training programs in the management and use of instructional materials; diffusion by the centers of existing materials which have been adopted/adapted by local districts; and a steady increase in the number of state and local personnel who have sought Network services, even though participation in the Network is strictly voluntary.[26]

NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION, Bureau of Occupational and Adult Education, U. S. Office of Education

National Center for Research in Vocational Education, The Center for Vocational Education, Ohio State University, 1960 Kenny Road, Columbus, Ohio 43210 (614) 486 3655

Subject Areas: Vocational education - research, leadership development, national planning, evaluation, and dissemination.

Intended Users: State and local leaders and administrators in vocational education and, through them, teachers, students, administrators, counselors, teacher educators, researchers, developers, trainers, supervisors, managers, and planners, including users of other information systems.

Intents/Purposes

The Center was established to meet a need to achieve better and quicker results with vocational education research funds; to effect program improvements in vocational education at the national, state, and local levels; and to focus more sharply on and target the resources for research, demonstration, curriculum development, and the dissemination of results. Specifically, the purposes of the Center are to:

(1) conduct applied research and development on problems of national significance in vocational education;

(2) provide leadership development and inservice education activities for state and local leaders;

(3) disseminate the results of research, development, demonstration, and training projects;

(4) develop and provide information to facilitate national planning and policy development in vocational education;

(5) act as a clearinghouse for information on contracts made by the states, and compile annotated bibliographies of research, exemplary and innovative projects assisted under vocational legislation from FY 1970-77;

(6) work with states, local education agencies, and other public agencies in developing methods of evaluating programs so that those agencies might offer job training programs which are more closely related to the types of jobs actually available in their communities, regions, and states.

Contents

Information. The National Center for Research in Vocational Education (NCRVE) will be taking over and continuing two publications which were started under previous projects at the Center for Vocational Education. One of these is Resources in Vocational Education (RIVE), which was formerly called Abstracts of Instructional and Research Materials in Vocational and Technical Education (AIM/ARM); the other is Current Projects in Vocational Education. RIVE, a bimonthly resource, will have two sections, one containing document resumes of research and curriculum materials in vocational education and related fields funded under the Vocational Amendments of 1968, Public Law 90-576, Parts C, D. I, and J (like AIM/ARM) and the other containing descriptions of current state-administered projects (like the Current Projects publication). The document descriptions in both sections are in the same format as Resources in Education (RIE) from ERIC. [Yearly subscription rate $34]

A look at Volume 10, Number 3 (1977)[32] issue of Resources in Vocational Education reveals subject index headings of Career Awareness, Career Choice, Career Education, Career Education in Arizona, Career Exploration, Career Ladders, Career Opportunities, and Career Planning. Listed under these headings

are position papers, curriculum guides, project final reports, and research reports. Of the 25 "Projects in Progress," described in the same issue, two are on career exploration projects at the secondary level, one is on an Experience-Based Career Education (EBCE) model, and one on the implementation of a high school career education program.

The Center will also operate as a clearinghouse for reports and other products of vocational education research and development (R&D), in close cooperation with ERIC/CE, the Smithsonian Science Information Exchange (SSIE), and the National Technical Information Service (NTIS), along with other information systems. An annotated bibliography of state- and federally-administered research will be published, together with annual reports of that same research. A system will also be implemented to improve the access of military-developed technical training materials by civilian vocational educators.

The Center will also disseminate R&D information, including that on curriculum products designed for the unique needs of vocational educators, and especially those products developed with federal funds, and special packages of information on dissemination and utilization activities.

Finally, the Center will be responsible for generating and collecting information relevant to national vocational education needs, applied research and development and curriculum development priorities, Department of Defense curriculum products that could be converted for civilian use, and educational personnel needs.

Services will be provided by the Center in four areas:

(1) The Center is charged with conducting "applied research and development on problems of national significance in vocational education."[31] This includes both studies designated by the U. S. Office of Education and independent studies, but no curriculum development.

(2) Leadership development is to be carried out (a) to provide national, state, and local leaders with up to a year of advanced study on contemporary issues, problems, and trends in vocational education "to enhance productive inquiry about vocational education administration, curriculum development, teacher education, [and] guidance, etc."[31] and (b) to provide inservice training for about 2,000 leaders annually in the form of short work sessions.

(3) The Center will provide assistance and help develop expertise in state and local staff for the evaluation of local programs, and especially for follow-up studies of program leavers and completers.

(4) The Center will engage in national liaison with researchers, practitioners, R&D organizations, and users of R&D in order to facilitate, where appropriate, coordinated planning and development.

Methodology

Leadership Development. The Center will be providing leadership development programs through an Advanced Study Center and a National Academy for Vocational Educators. The Advanced Study Center will invite at least ten leaders to serve as fellows for a year and provide these participants with resources for study, travel, and consultation. The National Academy is to have two distinct in-service program components, both of which will be based on an annual needs assessment to be conducted by the Center. Enrollment in both components is to be built up gradually and both are to be self-supporting cost wise. The first component will involve participants selected on records "of notable accomplishments in vocational education and a promise of future distinction as an educational leader"[31] in two to four month, full-time in-residence classes -- three or four classes of about forty each annually. The second component will be designed to serve leaders on an open, non-invitational basis through a series of short, well-focused institutes, seminars, and clinics.

Dissemination and Utilization. The National Center for Research in Vocational Education is to develop and operate a national dissemination and utilization system to serve the users of vocational education research and development information and products and to establish liaison with the dissemination program of the National Institute of Education and the National Diffusion Network (NDN) of the U. S. Office of Education. Yearly studies will be conducted, as part of this effort, to determine the need for special packages of information and products for users, These packages will then be produced and disseminated. Studies will also be made to determine the distribution, utilization, and impact of vocational R&D information and products and leadership training activities will be conducted for the benefit of fifty-six Research Coordinating Units and six Curriculum Coordinating Centers (of the National Network for Curriculum Coordination in Vocational and Technical Education) in order to improve the dissemination and utilization of R&D information and products.

Clearinghouse. The Center will operate in close liaison with ERIC/CE, the National Technical Information Service (NTIS), and other information systems, a system of accession, collection, storage, and retrieval of reports and other products of vocational education research and development (R&D), including the National Education Practice File Development Project (FILE) and the AIM/ARM project. This means development and operation of: (1) an accessing and "crosswalk" system to submit materials to ERIC, the Smithsonian Science Information Exchange (SSIE), NTIS, and the Interagency Research Information System (IRIS), including the "tracking" of federally supported R&D projects in vocational education in order to assure that information about products yielded by these projects is available for dissemination; and (2) a system of information analysis that will yield bibliographies, descriptions of exemplary and innovative programs, state-of-the-art papers, and annual reports of vocational education R&D, curriculum development, demonstration, and personnel development projects

supported by the U. S. Office of Education and the states under current vocational education legislation.

Evaluation

The National Center for Research in Vocational Education has just been established. No information on plans for evaluation of the Center's program was available for this study.

NATIONAL DIFFUSION NETWORK, Division of Educational Replication, Bureau of School Systems, U. S. Office of Education.

ROB #3, Room 3616, 400 Maryland Avenue, S.W., Washington, D.C.
(202) 245 2257

Subject Areas: Exemplary (Joint Dissemination Review Panel-approved) programs in a number of areas, including Career/Vocational Education, Early Childhood Education, Reading/Language Arts/Mathematics, Bilingual/Migrant Education and Special Education. Technical assistance in curriculum planning and development, and especially in the local replication of exemplary programs.

Intended Users: Elementary and secondary schools, public and private.

Intents/Purposes

According to an NDN brochure, the Network is "an expanding nationwide system that offers proven educational alternatives to meet the needs of school-age youngsters and those who educate them.

"NDN's goal is to help local educators solve pressing problems more swiftly, efficiently, and economically through program improvement efforts. The NDN links local school districts, intermediate service agencies, and state departments of education — within and across state boundaries -- so that programs developed in one district and proven effective can be used in other districts facing similar challenges...."[36]

Contents

Information and Programs. Educational Programs That Work[33] lists exemplary programs that are available for dissemination under ten headings. Those titles with direct or indirect relevance for career education have been selected for presentation below.

Alternative Schools
- Alternative Learning Project, Providence, R.I. (Educational Alternatives, Career Education, Basic Skills)
- Experience-Based Career Education [EBCE], Northwest Laboratory (see below)
- FWL Experience-Based Career Education, San Francisco (see below)
- FLIT: Functional Literacy, Carmel, Calif. (see below)
- and 12 other programs.

Bilingual and Migrant Education
- Florida Migratory Child Compensatory Program, Tallahassee (Migrant Child Education, Language Arts, Occupational Choice)
- NOMAD, Lawrence, Mich. (see below)
- and 16 other programs.

Career or Vocational Education
- Alternative Learning Project, Rhode Island (see above)
- Career Intern Program, Philadelphia, Pa. (Educational Alternatives, Career Education, Dropout Prevention)
- project ECOlogy: Environmental Career-Oriented Education, Seattle, Wash. (see below)
- ECOS Training Institute [ETI], New York (see below)
- Experience-Based Career Education [EBCE], Northwest Regional Laboratory, Portland, Oreg. (Educational Alternatives, Community Involvement, Interdisciplinary Approach)
- FWL Experience-Based Career Education, Far West Laboratory, San Francisco (Experience-based Learning, Community Involvement, Career Education)
- FLIT: Functional Literacy, Carmel, Calif. (Basic Skills, Career Education, Remedial Reading)
- Lincoln County Exemplary Project in Career Education, West Virginia (Career Exploration, Guidance)
- NOMAD: Needs and Objectives for Migrant Advancement and Development, Lawrence, Mich. (Diagnostic Teaching, Migrant Child Education, Career Choice)
- Occupational and Career Development, Marietta, Ga. (Career Education, Career Exploration, Community Involvement)
- Occupational Versatility [O.V.], Tempe, Ariz. (Industrial Arts, Career Education, Independent Study)
- project R-3: Readiness, Relevance, and Reinforcement, San Jose, Calif. (Individualized Instruction, Heterogeneous Grouping, Cooperative Planning)
- RBS Experience-Based Career Education, Research for Better Schools, Philadelphia, Pa. (Career Education, Community Involvement, Basic Skills)
- Secondary Credit Exchange Program, Connell, Wash. (Learning Dropout Prevention, Migrant Education)

St. John Valley Bilingual Education Program, Madawaska, Maine
(Bilingual Education, Biculturism, Performance-Based Education)
UCLA Allied Health Professions Publications, Los Angeles, California
(Health Occupations, Instructional Materials, Career Education)
Vocational Reading Power (VRP], Bear Lake, Minnesota (Developmental Reading, Inservice Teacher Education, Vocational Education)
Early Childhood/Parent Readiness/Parent Involvement, 57 programs.
Environmental Education, 7 programs.
Organizational Arrangements/Processes/Training, 19 programs.
Reading/Language Arts/Math, 91 programs.
Special Education/Learning Disabilities, 41 programs.
Special Interests: Arts/Communication Skills/Technology, 11 programs.
Special Interests: Health/Human Behavior/Physical Education/Multiple Talent Development, 6 programs.
Also included is a list of Joint Dissemination Review Panel projects with limited availability:
Directory of Representative Work Education Programs, Washington, D.C.
project Talent Development, Miami, Florida,
and 14 other titles.

A Materials Inventory, listing materials needed to adopt each of the exemplary programs, is updated each year and available through ERIC. NDN also publishes a State Facilitator Profile containing descriptive information on each NDN State Facilitator project, a monthly newsletter for NDN members, and numerous other information tools prepared especially for NDN members.

Services. The State Facilitators work directly with public, nonpublic, and private schools in their states to assist in planning for the selection and implementation of one or more exemplary programs. Developer/Demonstrators provide introductory materials and make presentations for interested school personnel, and then work closely with schools who have decided to adopt their programs through training and follow-up assistance.

Methodology

User Access. Those schools who are not already NDN members can contact either a State Facilitator or the Division of Educational Replication in Washington, D. C. Once a program has been selected, the new member then works with the Developer/Demonstrator of that program to obtain help on implementation. The

State Facilitators (SFs), located in state education departments, are funded to help local districts review and select exemplary (JDRP-approved) programs best suited to their needs and to assist making contacts with appropriate D/Ds. The D/Ds are districts which have developed programs which they have evaluated and submitted (successfully) for JDRP approval. D/Ds are funded to help others adopt their programs. (Title IVC and Title I funds from the Elementary and Secondary Education Act are also available to districts for planning.)

The State Facilitator Profile is available through ERIC, or from the Order Department, Far West Laboratory, 1855 Folsom Street, San Francisco, California 94103 [$6.50]. Education Programs That Work is also available from the Far West Laboratory and contains listings of State Facilitators, ESEA Title I Coordinators, ESEA Title I State Migrant Coordinators, and ESEA Title IV Coordinators, in addition to the listings of programs.

Services. The State Facilitators carefully match the interests of local schools with available exemplary programs. They survey school needs within their states, review programs that seem likely to meet those needs, and help arrange information exchanges, staff training, delivery of materials resources, and implementation assistance -- in close coordination with Developer/Demonstrators. SFs may also provide other information services, organizational planning for change, and problem-solving assistance to schools. D/Ds carry out both preview/information sessions about their programs and work intensively with staff members at local sites in teacher training and other implementation activities.

Both the State Facilitators and the Developer/Demonstrators are assisted in their roles by three technical assistance contractors:

(1) The Technical Assistance Brokerage (TAB), operating through five Regional Service Units, works mainly to put SFs and D/Ds needing help in touch with

those (usually other NDN participants) who can provide services. Although at times RSU staff may give direct technical assistance to local sites, the linking of available expertise within the Network is the primary approach. Most services are provided on a one-to-one basis, free of charge or through cost sharing. However, if several projects have similar needs, assistance may be provided in workshops or on a small-group basis. TAB work groups also prepare materials and workshops on critical topics identified by many NDN projects. The TAB contract is manage by CAPLA Associates of Rochelle Park, New Jersey. TAB services are available to all State Facilitators and funded Developer/Demonstrators. As financial resources permit, services will also be provided to unfunded JDRP-approved projects, state departments of education, and intermediate service agencies.

(2) Through the preparation and distribution of a wide range of materials, the ED Materials Support Center works closely to link NDN participants together, to provide the D/Ds with tools that will facilitate their work as disseminators, and to explain NDN's work to the educatonal community. ED services are provided mainly through the publication of materials: some one-time efforts designed to meet specialized needs; others produced on a regular basis. ED is housed at Far West Laboratory in San Francisco, California. All publications produced by ED staff are automatically mailed to all NDN projects and NDN participants are encouraged to contact ED staff with ideas for new publications and/or reactions and revision suggestions for Network tools.

(3) The Title I Technical Assistance Support System. Since the U. S. Office of Education is making a special effort to stimulate the adoption of exemplary compensatory education programs, a specialized technical assistance contract was awarded to The NETWORK of Andover, Massachusetts, to provide support services tailored to the individual needs of exemplary project D/Ds. Projects will also be provided comprehensive information packages in such areas

as school-based change, dissemination and diffusion, and organizational development. A research component will examine questions related to the nature of demonstration projects and their needs for technical assistance.

Evaluation

Currently there are not Network-wide evaluation studies under way. However, NDN's first year activities were evaluated by Magi Educational Services, Inc. The Magi report deals with the NDN activities for the first part of 1974-1975, identifying quantifiable outcomes and processes related to these outcomes. A second evaluation was conducted by the Stanford Research Institute during the 1975-76 school year for the purpose of better understanding the relative effectiveness of NDN's approach to the diffusion of exemplary programs. In future years, as part of the contract obligations, D/Ds and SFs will collect data that will lend itself to analyses of basic trends and accomplishments.

In order to be igible for federal dissemination support as exemplary, an instructional program developed with federal funding must be approved by the Joint Dissemination Review Panel of the U. S. Office of Education and the National Institute of Education. The review process is initiated when the program's project officer "believes that an intervention supported by the Education Division may be worthy of dissemination as exemplary."[35] The format for submission includes a description of the intervention and evidence of its effectiveness. Review criteria described in the Joint Dissemination Review Panel Idea Book[35] are: (1) Did a change occur? (2) Was the effect consisten enough and observed often enough to be statistically significant? (3) Was the effect educationally significant? (4) Can the intervention be implemented in another location with a reasonable expectation of comparable impact? (5) How likely is it that the observed effects resulted from the intervention? (6) Is the presented evidence believable and interpretable?

"Effectiveness is the sole criterion for approval by the JDRP. No judgments are made regarding the desirability of projects or products from any other standpoint."[35]

NATIONAL TECHNICAL INFORMATION SERVICE, U. S. Department of Commerce.

Information Center and Bookstore, 425 13th Street N. W., Suite 620, Washington, D.C. 20004 (202) 724 3509
Springfield Operations Center, 5285 Port Royal Road, Springfield, VA 22161 (202) 724 3509 or (703) 557 4650

Subject Areas: Research sponsored by the United States and foreign governments. Topics include: behavior and society, job training and career development, adult education, adolescent attitudes, education, employment, consumer products, computer assisted instruction, information systems, personnel (productivity), peronnel development, teaching methods, teacher pupil interactions, vocational guidance, individualized instruction, and women (role in the workforce).

Intended Users: Mainly businessmen and professionals "accustomed to locating and applying specialized information to problem solving." Also: librarians, local officials, universities, business and industry, public health departments, researchers, etc.

Intents/Purposes

The National Technical Information Service (NTIS) "sells technical reports and other information products of specialized interest under the provisions of Title 15, U. S. Code 1151-7. This law, which established a clearinghouse for scientific, technical, and engineering information, also directs the NTIS to recover its costs from the sales of its products and services."[41]

Most government research is conducted by United States corporations and universities under contracts to meet the specific objectives of government agencies. "The NTIS collection is the largest and best publicly available pool of widely varied research results in the world. . . . Timely and continuous reporting to subscribers is ensured by agreements between NTIS and federal research sponsoring organizations and Special Technology Groups. NTIS

is the marketing coordinator for the latter, for their publication, technical inquiries and special analyses.

"NTIS, therefore, is a unique Government agency operating very much as a business; it is sustained only by its customers . . . not by tax supported Congressional appropriation."[41]

Contents

"The National Technical Information Service is a central permanent source of specialized (i.e., business, economic, scientific, social) information of varied origins. NTIS's information is always available; single copies of any of its million titles are printed to order when not in stock...."[41] The NTIS Bibliographic Data File contains 600,000 reports on completed U. S. government research and other analyses, 1964 to the present.

A listing of Selected Research in Microfiche (SRIM)[38,39] categories includes the following headings, some of which may have documents relevant to career education research and development:

43. Problem Solving for Local Government
    Human Resources
    Economic and Community Development . . . .
44. Health Planning
    Environmental and Health Factors
    Personnel Health Care Services . . . .
57. Medicine and Biology
    Occupational Therapy, Physical Therapy, and Rehabilitation . . . .
70. Administration
    Personnel Management, Labor Relations, and Manpower Studies . . . .
84. Space Technology
    Astronautics . . . .
85. Transportation
    Air Transportation
92. Behavior and Society
    Job Training and Career Development: vocational training, on job training, retraining, vocational rehabilitation, use and design of training simulators and equipment, instructional aids, professional development, career development. . . .
    Education, Law, and Humanities: formal education, school systems, educational adminstration, curricula, instructional devices and materials (including audiovisual); teaching methods, computer aided instruction; laws, linguistics, machine translation, fine arts, archeology, history, anthropology, humanities. . . .

A listing of Current Published Searches[42] from the Bibliographic File contains the following headings: Adolescents, Adult Education, Career Development, Civilian Personnel (Career Development), Computer Aided Instruction, Consumer Products, Crime, Criminology, Economic (development, analysis, impact, models), Electronics, Farm Crops, Handicapped Persons, Industry, Instruction (Driver Education), Job Satisfaction, Jobs, Labor Relations (Unions), Manpower, Medical Services, Personnel, Population, Students (Attitudes), Vocational Guidance, Work (Attitudes), and Youth.

Methodology

User Access. NTIS documents can be identified in the following ways:

NTISearch - on-line computer search service [$100 for up to 100 summaries]

Published Searches (from List of Published Searches[42]) [@ $25 per heading]

26 Weekly Newsletters, Weekly Government Abstracts, on various topics (e.g., Behavior and Society), by subscription. [$45 per year]

The Government Reports Announcements and Index, biweekly summaries of Government research. [@ $200 per year]

NTIS Bibliographic Data File is available on tape. [annual lease, $4,000 plus a "negotiated use charge."]

To aid users, there is a NTIS Subject Classification manual,[40] a List of Published Searches,[42] a SRIM Categories leaflet,[38] and the Information Services Catalog[41] [the latter 3 are free]. Copies of whole research reports on which the summaries are based are sold by NTIS in paper copy or microform [1-25 pages, $3.00; 50¢ each additional 25 pages up to 150; 50¢ to 75¢ for each additional 25 pages after that.]

Adding to the Database. Producers of "highly specialized NTIS-type data that would benefit scientists, technicians, economists, businessmen, or social planners"[41] are solicited by NTIS. Those wishing to contribute documents are advised to write to the Assistant Director, Product Program and Administrative Management,

NTIS, 5285 Port Royal Road, Springfield, Virginia 22161. All reports are summarized and given descriptors to facilitate searches and cataloguing. Contributors include major universities and corporations, documents come from many sources, including state and local government, the Department of Health, Education and Welfare (ERIC, the National Center for Educational Statistics, NIE, USOE) and many other federal agencies.

Evaluation

No information on any formal evaluation of NTIS was obtained in this study. According to the NTIS contact person, "NTIS encourages feedback and publishes the telephone numbers of the offices in charge of its various services in it catalogs and ads to facilitate user feedback."

III. Comparisons of the Systems

In this chapter the seven systems* are compared on intended users and on the main elements of instructional design, intents/purposes, contents, methodology, and evaluation. Salient points of these comparisons are summarized in Figure 2. For more detail on any of the elements contained in the seven systems, see the descriptions in Chapter II, beginning on page 8.

Briefly, each of the information systems described in Chapter II either has a database of its own or draws upon and refers its readers to one or more other databases. All of the systems offer some kind of technical assistance, at least in the use of their databases, while four provide assistance in curriculum development and the selection and use of instructional materials and four offer assistance in carrying out research, evaluation, needs assessment, and/or clarification of career education. Four of the system are sources of instructional materials in career education, while five of the systems are sources of documents on research, evaluation, policy/theoretical, and other related topics. Three systems include programs at the elementary school level and the other four with programs at the secondary school level and higher.

Intended Users

Those interested in career education information and services appear to approach the field from three main perspectives. (1) First, there are those whose main focus is vocational and technical education and who see career education as an extension of their field, which includes attention to prevocational (but vocationally-oriented) development and education of the individual beginning in the seventh grade (as early as federal vocational education legislation

*Originally, there were eight systems listed in this study, but AIM/ARM has now been subsumed under the National Center for Research in Vocational Education.

Figure 2

Comparisons of Career Education Information/Assistance Systems

	NCCE	ERIC/CE	RDX	NNCCVTE	NCRVE	NDN	NTIS
USERS							
Teachers/Counselors	P	S	S	S		S	
Administrators	P	P	P	P	P	P	P
Researchers		P	P	S	P	S	P
Elementary Level	P	P**	P		S	P	
Secondary/Postsecondary	P	P	P	P	P	P	P
INTENTS							
Spread	S	S	S	S	S	S	S
Exchange	P	P	P	P	P	P	S
Choice	P	S	P	P	P	P	
Implementation	P		S	P		P	
CONTENTS							
Career Education	P	S	S	S	S	S	S
Vocational/Technical Ed.		P		P	P	S	S
Other		S	P			P	P
Information on:							
Instructional Materials	P	P	S	P	S	S	
Programs/Practices	S	P	P	P	S	P	
Research		P	P	S	P		P
Documents available:							
Abstracts/Summaries	S	P	S*	S*	Thru RIVE	S*	P
For Preview	P	Microfiche		S	Microfiche		
For Purchase	P	EDRS		S	EDRS - With Trng.		P
Technical Assistance on:							
Materials Selection	P		S	P		P	
Program Development	P		P	P		P	
Evaluation	S		P	S	P	S	
Research			P	S	P		
METHODOLOGY							
User Access: Direct	P	P	S	S	S	S	P
Linking Agent	S	S	SEA	SLR	P	SF	S
Restrictions on Access?	No	No	No in 42 states	No	Partial	Partial	No
Computerized Database	Yes	Yes	No	Partial	ERIC	No	Yes

P = Primary Emphasis S = Secondary Emphasis

*Some through EDRS; some through own catalogs.

**For career education only. ERIC/CE also serves vocational/technical education and adult/continuing education.

will allow). These prevocational programs have traditionally included career guidance courses and consultations focused on school course planning, particularly for students not planning to enroll in the college preparatory, or "academic" course of study in high school.

(2) There is a second group made up of those who have been involved in the post-1970 evolution of career education which began with, but at mid-decade became separated from, vocational/technical education at the federal level. Here the career education emphasis has still been "prevocational" but focused on ways of making standard programs more relevant to students, and on improving the teaching and learning of basic skills subjects, through the infusion of career-related information, concepts, and attitudes into the main subjects of the standard curriculum, starting as early as pre-kindergarten. This view of career education is usually broad enough to include higher education and the professions as well as the more traditional vocational and technical education areas, in addition to career awareness and exploration, in a cradle to grave perspective.

(3) A third group of educators concerned with career education is made up of those who, while not calling themselves career educators, draw upon career education ideas and materials to enhance the teaching of other subject areas such as reading and language arts, mathematics, social studies, and science. The members of this group may tend to tap a wider range of resources than the above two, resources which would include RDX, NDN, ERIC and the other systems, but would also include the various subject area and other professional organizations such as the Association for Supervision and Curriculum Development, the National Assocation for the Education of Young Children, the National Council for the Social Studies, the International Reading Association, and others. Whereas the second group is promoting the infusion of career education topics,

this third group represents the curriculum areas into which the infusions are being made.

Which of these three groups do the seven systems cater to? Only one system (NCCE) is primarily for career educators in the sense of (2) above, while NNCCVTE, NCRVE (and RIVE or AIM/ARM), and (in some ways) ERIC/CE and NTIS fit the group described in (1). It seems reasonable to assume that the first (1) group of users are, or have been, involved with the Bureau of Occupational and Adult Education-supported systems, while those in the second (2) group would more likely identify with the Office of Career Education-supported systems, although the second group would probably overlap with the third (3) group in the use of RDX, NDN, and ERIC/CE. The users of NTIS are hard to identify in terms of their career education involvement although there are groups of users labeled "Secondary School," "Trade School," and "Business/Industry/Professional" in the NTIS records of transactions. Generally speaking, the seven systems are set up to serve, with different emphases, a similar clientele --that is, educators and others, some of whom may be involved with career education of some kind.

However, there are some constraints within some of the systems on just who their career education users will be, when it comes down to specific cases. For example, people in a wide range of roles (including local teachers, parents, and students) might contact ERIC and NCCE directly, whereas the other systems are accessible mainly either (a) through linking agents such as the NNCCVTE State Liaison Representatives, the NDN State Facilitators, and the state department of education contacts for RDX, or (b) by specialists in research or leadership roles, as would be the case with NCRVE. On the other hand, some systems provide or arrange for technical assistance in areas such as program development and materials selection (NCCE, RDX, NDN, and NNCCVTE) and research or evaluation

(NCRVE, NCCE, and NNCCVTE), whereas other systems (ERIC and NTIS) depend much more on user initiative for at least defining the topics to be searched.

Other differences aomng the systems in relation to users include:

(a) The fact that some (like ERIC, NCRVE and RIVE-AIM/ARM, NTIS, and the database of NCCE) are passive sources available to be tapped on user initiative, whereas others (NDN, RDX, NNCCVTE, and NCCE in its training function) meet users at least half way through a variety of outreach activities involving local, state, and regional contact persons.

(b) Except for exploratory orientation sessions for prospective participants which are held by State Facilitators with the help of Developer/Demonstrators, the services of the NDN system are available only to D/Ds who have contracted to work with local sites and others already in the system.

(c) NCCE, NDN, and RDX specialize in instructional programs and materials, and in helping those who want to select and adopt or adapt them, so offer minimal help to those who are interested in research (except as R&D outcomes), whereas the reverse is true for NCRVE and NTIS. ERIC and NNCCVTE serve users with both kinds of interests.

(d) Some of the NNCCVTE services may not be available to some career educators since in some states (e.g., California) career education is adminstered separately from vocational and technical education, and since NNCCVTE does not encompass programs at the elementary school level (although some of the state NNCCVTE affiliates do), whereas NCCE, ERIC, RDX, and NDN offer something for career educators at all levels, even though RDX is available only in 41 states.

Intents/Purposes

The 1977 Dissemination Forum suggested four possible usages for the term dissemination:

Usage 1. Spread: "The one-way casting out of knowledge in all its forms --

information, products, ideas, and materials -- 'as though sowing seeds'."

None of the systems studied appear to fit this model exclusively, with the possible exception of NTIS.

Usage 2. Exchange: "The two-way or multiway flow of information, products, ideas, and materials as to needs, problems, and potential solutions."

All the systems studied fit this model to some degree, with NTIS being the weakest in this respect; RDX, NNCCVTE, NDN, NCRVE, and NCCE being the strongest; and ERIC/CE, RIVE (AIM/ARM, part of NCRVE) perhaps somewhere in the middle.

Usage 3. Choice: "The facilitation of rational consideration and selection among those ideas, materials, outcomes of research and development, effective educational practices, and other knowledge that can be used for the improvement of education."

Five of the systems fit this model: NCCE, NDN, RDX, NNCCVTE, and NCRVE, although emphasizing somewhat different content among them.

Usage 4. Implementation. "The facilitation of adoption, adaptation, and installation of improvements."

Only four systems fit this model: NCCE, NDN, NNCCVTE, and RDX.

Contents

Perhaps the most significant comparisons of the seven systems in this study can be made on the basis of their career education content, of which there are two main kinds: Information, including documents about instructional programs and materials, research and evaluation, and theory and policy; and Services, including resource search and referral, coordination and assistance in program development, assistance in the selection and implementation of instructional materials, training for personnel, and consultation on needs assessment, clarification of career education, evaluation, and research.

Information on Materials and Programs. Of the seven systems, the National Center for Career Education (NCCE) is the only one that specializes in career

education exclusively. Although NCCE does hold some shelf documents in other career education areas (e.g., research, policy) for reference, the main NCCE database consists of instructional materials (curriculum guides, teacher guides, teacher training, and student materials) plus computer stored and indexed descriptions of these materials. Most of the NCCE documents are unpublished and locally produced (often as part of NCCE training), but there are some from various career education projects (including the Center for Vocational Education) and a number of commercial items, both print and nonprint materials. Although the NCCE materials are intended primarily for use in training programs to support local curriculum development, copies of all but the commercial items can be obtained (after being identified by computer search) for preview and possible purchase directly from NCCE.

Other systems, while not specializing in career education, also have descriptive listings of some career education materials, as well as copies of the materials themselves in some cases. Three of these systems include elementary school level materials. ERIC/CE indexes and microfilms instructional materials (with the exception of nonprint items) along with other documents, and also makes document summaries available; the National Diffusion Network (NDN) also has listings of instructional materials related to its exemplary programs (which are available through ERIC) and provides descriptions of those programs in Educational Programs That Work[33] under the heading of "Career/Vocational Education;" and the Research and Development Exchange (RDX) lists, in the NIE Catalog, descriptions of some career education programs and related materials (including a number of Experience-Based Career Education models, which are also listed by NDN, ERIC, NNCCVTE, and NCCE) under the heading of "Education and Work (Career Education."

Two other systems are limited mainly to the secondary school (grades 7 - 12)

level and beyond. Some National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE) regional centers and state offices list and/or shelve available career education materials and information on career education programs (a few of which are for the elementary school levels, too, as in the case of New Jersey*), along with resources on vocational education. Resources in Vocational Education (once AIM/ARM) has annotated listings of some career education materials in the ERIC format. In addition, what career education-related topics were found in National Technical Information Service (NTIS) listings dealt with adolescents and adults, and especially with Department of Defense vocational training programs for departing soldiers (which are now part of the NCRVE content, too) and programs for the disadvantaged and handicapped job training.

The ERIC/CE, RIVE (AIM/ARM), and some of the RDX, NDN, and NNCCVTE materials and program descriptions can be obtained through ERIC Document Reproduction Service (EDRS) in microfiche or hardcopy, following a search of Resources in Education, RIVE, or the ERIC computer memory. A few of the NNCCVTE regional centers and states either have materials on hand for loan or sale or can refer users to sources, including commercial producers. For the most part, ERIC, RDX, and NDN do not deal with commercial materials, but there are some exceptions.

ERIC/CE and NCCE. In the course of this study questions were raised regarding the NCCE and ERIC/CE databases and a possible overlap between them involving serious duplication of effort and resources. As indicated earlier, NCCE is supposed to bank only instructional materials in career education, although it does maintain a shelf file of a limited number of other documents for reference purposes; while ERIC/CE banks a wide range of documents, including those on research and evaluation. theory and policy, and instructional materials in

* See page 31.

vocational and technical and adult and continuing education as well as career education. NCCE disseminates materials as part of its training program in curriculum development as well as in response to requests that come by letter and telephone. ERIC/CE assists users in searching the database and identifying what materials are available that might fit their needs, but does not offer assistance in curriculum development or materials selection and implementation.

Two approaches were used to compare the contents of these two systems: an analysis of selected RIE listings and requests for parallel searches in the two systems. First of all, the 1976 RIE listings under nine career education-related headings were examined in order to identify those titles which appeared to be instructional materials (i.e., student materials, teacher guides, and course descriptions). These selected titles were then screened, with the help of the NCCE staff, to determine which, if any, were also in the NCCE database. The results were as follows:*

ERIC Heading	No./Titles in ERIC	No./Titles in NCCE
Career Awareness	72	9
Career Choice	7	0
Career Education	220	30
Career Ladders	2	0
Career Opportunities	28	10
Career Oriented Mathematics	4	0
Career Planning	21	0
Careers	1	0
Totals	355	49

In a second comparison, three identical searches were requested of both the ERIC/CE and NCCE systems: (1) descriptions of instructional materials (for both students and teachers) for use in introducting career education topics into the study of mathematics in grades 4 - 6; (2) descriptions of instructional materials for use in introducing career education topics into the study of

*A comprehensive comparison of the two databases might change these preliminary findings, but such a search would be quite costly as the two computer systems are not integrated. There is also evidence that there was more sharing between ERIC and NCCE in the first year of NCCE's existence than there has been more recently.

geometry and general mathematics at the high school level (grades 9 - 12); and (3) evaluation and research studies that show the effects of career education programs on student achievement in basic skills at the high school level. The results of these searches can be summarized as follows:

Grades 4 - 6 Mathematics: 70 titles were identified in the NCCE search and 63 in the ERIC/CE search, with only four titles in common, all of which were 1974 Center for Vocational Education publications.

Grades 9 - 12 Mathematics: 28 titles were identified in the NCCE search and 20 in the ERIC/CE search, with no overlap.

Effects of Career Education Infusion: The ERIC/CE search yielded 63 citations. NCCE's response indicated that search requrests on such topics are usually referred to ERIC, but did enclose one record of a reply sent to a user which involved a hand search of the NCCE reference library and yielded four titles. However, there was no overlap between the ERIC/CE and NCCE titles.

Other Information. Information and documents concerning other aspects of career education, as well as many other subject areas, are available from ERIC/CE and NCRVE, two systems which have vocational education as their main emphasis. NTIS, whose scope encompasses mainly non-educational research topics, has a few headings (among them "Job Training" and "Career Development") which may contain some research which is of at least indirect interest to career education,* but NCRVE is now a more likely source for such information since it is supposed to link up directly with NTIS. In addition, RDX works to promote the two-way flow of information -- R&D outcomes to users or practitioners, and practitioner needs and interests to R&D people -- but, here again, NCRVE is more likely to be useful in this respect for those interested specifically in career education, except perhaps at the elementary school level.

*No search of the NTIS database was made for this study.

ERIC/CE summarizes and indexes journal articles relevant to career education from a few journals in addition to unpublished research and evaluation reports, theoretical and policy papers, conference summaries, and other types of "fugitive" documents in career education as well as in other educational areas. NCRVE, RDX, and NDN specialize in federally supported R&D outcomes, with NCRVE regularly documenting research in progress as well as research reports. However, only a small proportion of these R&D projects and outcomes -- perhaps less than a quarter -- deal directly with career education as distinct from vocational and technical and other subject areas in education. As indicated earlier, NCCE has some research (and other noninstructional) documents in its shelf collection for reference, but does not index and computer bank these for regular dissemination to users.

ERIC/CE, NCRVE, and NTIS will carry out searches for, and supply resumes of, documents relevant to user interests. All three also package prepared compilations of document descriptions on selected topics. Microfiche or paper copies of ERIC, NCRVE, and some RDX and NDN documents are available from ERIC/EDRS or at the 650 or more ERIC Micrfiche collection locations. NTIS documents must be ordered from NTIS (unless they are also in the ERIC system). NCCE documents are available for both preview and purchase from NCCE.

Services and Technical Assistance. All the systems offer services of some type, ranging from simple referral to other sources and training in information retrieval to long term training programs related to curriculum development or leadership and research skills, Most of the systems have facilities to refer users internally, within the system, or to other sources: RDX through its Resource Referral Service (RRS) and regional exchanges; NDN through its State Facilitators and Regional Service Units: NNCCVTE through State Liaison Representatives; and ERIC/CE, NCCE, NCRVE, and NTIS through national offices. In

fact, NCRVE's scope of work involves coordination with many other systems. Career educators can certainly use these referral services to help them to locate needed information and services.

Four of the systems specialize in the development and/or implementation of programs and practices. The main thrust of NCCE is local level curriculum development in career education (pre-kindergarten through grade 12+) through inservice staff training and the utilization of materials from other schools and projects as well as those developed in the course of training. NCCE also carries on shorter orientation and clarification sessions in career education.

NNCCVTE works to facilitate curriculum development in vocational education (including some career education, from grade 7 up) and to help participating agencies to share in the work of others. In contrast, NDN and RDX work mainly to inform local districts (and others) about available programs, materials and other R&D "outcomes" (including some in career education, K - 12+) which have already been developed through a systematic R&D process which includes field testing and evaluation. NDN offers an arrangement in which people from Developer/Demonstrator sites help people from other local sites adopt and adapt exemplary programs, whereas with the RDX, although some assistance in implementation is involved, the main thrust is on the exchange of information and decision making.

Other staff development and consultation services are also available from some of the systems. These include leadership training from NCRVE, and consultation in the areas of needs assessment (NCCE, NNCCVTE, and RDX), program evaluation (NCCE, NNCCVTE, NDN, and NCRVE), and research (NCRVE). Career educators can certainly participate in many of these services.

IV. Issues, Problems, Recommendations

In this section are contained discussions of problems that were found in the course of this study of the seven systems, recommendations for measures to meet the problems, and suggestions for further study.

Sorting Out the Systems

From the consumer, or user, point of view, there is a good deal of confusion as to (1) which of the seven systems offers what kinds of information and/or assistance and (2) which of the systems are accessible to various kinds of users who might be interested in career education, and how. Although the people contacted in the seven systems were very cooperative in supplying the information requested for this study, it still required an extensive amount of digging and analysis to put together the descriptions contained in Chapter II. To date, there is no adequate directory of career education information and technical assistance resources.

Overlap Among the Systems

A "possible overlap of service" was one of the areas of concern that led to the commissioning of this study. However, given a field where there are so many potential users holding a number of differing views of the nature of career education and serving a diverse clientele, it is not apparent on the basis of the information available on the seven systems studied, that there is any serious overlap among them. That is, there is no inefficient redundancy in the sense of two or more systems duplicating one another by offering identical information or services to an identical group of users. What seems more likely is that, if a majority of the school systems and other agencies in the United States wanted extensive assistance in career education programming, there would

not be enough capacity in the present systems to accomodate them. With the recent funding of the National Center for Research in Vocational Education, there will be some need to sort out functions with NTIS on government funded research and with ERIC, NCCE, and several of the other systems on the processing of instruction materials, but these look like minor problems.

In discussions with representatives of the various systems about their relationships with one another, there was one significant problem that came to light. This has to do with the fact that NCCE maintains a database of instructional materials which is accessible to users only through the Affiliate Center in Missoula and not through ERIC. Concern was expressed that, first of all, the NCCE database be included in the ERIC system so that it might be available to users through ERIC/CE, computer search vendors, and the more than 650 ERIC Microfiche Collections around the United States and its territories; and secondly, that career education practitioners who have instructional materials to share with others around the country are often confused about the relationship between NCCE and ERIC/CE (often thinking, for example, that materials sent to NCCE are also going into ERIC). In addition, it has been pointed out that the ERIC system includes clearinghouses in a wide range of subject areas, thus giving users potential access to career education-relevant materials which might not have been so labeled by their producers, whereas NCCE users are restricted to the career education-specialized instructional materials database.

In light of the 1977 Dissemination Forum's call for an "integrated resource base of knowledge . . . available through an ERIC-compatible index and a universally available set of access systems,"[44] these appear to be reasonable concerns.

On the other hand, the NCCE staff make two points that are supported in practice by two other systems and a number of users. The first is that the

ERIC system -- and in particular the ERIC Thesaurus descriptors and document resumes -- are better suited to the description of research and evaluation reports and other kinds of documents than to the description of instructional materials. In this view, the ERIC document descriptions do not provide enough of the right kind of information about the instructional characteristics of instructional materials to adequately facilitate the process of search, retrieval, preview and selection of materials that fit local situations, teachers, and students. Moreover, while NCCE can (and has) revised both its descriptors and computer banked descriptions of instructional materials in response to user feedback, once the ERIC resumes and indexes have been published they cannot be changed (although the descriptors to be used in the future can be revised, and full-text searching does allow for searching on the terms used in the document resumes as well as on the assigned descriptors).

The second point made by the NCCE staff is that many instructional materials, and especially those which have been developed by local teachers and not fully field tested and refined, should be selected and implemented in the context of training programs (or similar kinds of technical assistance) that stress curriculum development in career education and the adaptation of materials to local needs and conditions. (ERIC/CE does not offer intensive technical assistance of this kind). Although choice and implementation are important aspects of dissemination, this second point is somewhat weakened in this case by the fact that NCCE also makes instructional materials from its database available directly to users who do not participate in its curriculum development activities (i.e., through custom searches, Initial Search Listings, and Starter Libraries).

Describing Instructional Materials

Nevertheless, the points made by NCCE are important ones to be considered by anyone seriously interested in the effective dissemination of instructional

materials and, through the materials, programs in areas such as career education. To facilitate the process of selecting materials that fit local programs and students, it is important that those characteristics of available materials which make them instructional be adequately described and understood so that they can be compared with the instructional characteristics of the programs for which they are being considered. When an educational program is fully described at least four main aspects are described: its purposes, including philosophical basis (e.g., view of career education), goals, and objectives; its contents, including the scope and sequence of the topics and skills covered; its methodology, teaching/learning activities, setting, and approaches; and its means of evaluation, provisions for assessing student status and progress.* Descriptions of instructional materials which are produced for the purpose of storage and retrieval in an information system should cover these same categories of instructional information.**

These four instructional design constructs are used by the Educational Products Information Exchange (EPIE) Institute to produce product descriptions for its reports that can be used in lieu of instructional products themselves during the first stage or two of the selection process in order to narrow down the field of choice.*** But EPIE is not alone in seeing the need for instructional design information. Figure 3 presents outlines of the product description formats employed by four of the systems in this study -- RDX, NDN, NCCE, and

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*In addition to these four, the characteristics of intended users and a number of other kinds of information about materials are useful.

**The 1977 Dissemination Forum agreed that "adequate information should be provided so that users may judge and evaluate these resources for their own purposes."[44]

***See, for example, the Career Education S*E*T* (selection & evaluation tools).[43]

Comparison of Descriptive Categories for Instructional Materials

EPIE Institute	NIE Catalog (RDX)	Educational Programs That Work (NDN)	NCCE	ERIC
IDENTIFICATION				
Title	Title	Title	Title	Title
Author	Contact	Contact [D/D]	Author	Producer
Publisher/Source			Publisher/Source	Sponsoring Agency
Date	Date		(Date)*	Date
Components	Patterns of Use [Components]		Inventory, pages	Availability
Subject/s	Subject Area/s	Descriptors	Instructional Areas	Descriptors
Intended Users	Intended Users and Beneficiaries	Target Audience	Learning Level	Descriptors (incl. Level)*
INTENTS				
Developer's Rationale				
Learner Goals	Goals or Purposes	Description (Goals)*	Description (Goals)*	Resume (Goals)*
Learner Objectives				
CONTENTS				
Scope/Range, Extent	Narrative Description (Content)*	Description (Content)*	Subject Areas Description (Content)*	Resume (Content)*
Sequence				
METHODOLOGY				
Learning Activities	Narrative Description	Description (Methods)*	Methods, Activities	Resume (Methods)*
Learning Setting	Implementation Procedures, Time Req.	Implementation Requirements		
Learning Approach	Patterns of Use			
Teacher Training		Services Available		
MEANS OF EVALUATION				
Purpose, Methods, Content	Assessment Provisions	Evaluation	Evaluation	Resume (Evaluation)*
OTHER CONSIDERATIONS				
Fairness, etc.	Assurances	Assurances		
Evidence of Effectiveness	Claims	Claims		
Cost		Financial Requirements	Price	EDRS Prices

*Parenthesis indicates that the particular category of information is sometimes, but not always, included in the section indicated.

ERIC, as well as EPIE. In the figure it can be seen that there is a strong similarity among the categories of information included, especially across RDX, NDN, NCCE, and EPIE, even though the category labels are different, the information in each category may not be precisely comparable, and headings such as "Narrative Description" and "Description" may include information on two or more instructional design categories. The main rationale for having separate categories is twofold: (a) to increase the probability that the persons writing the product descriptions will include all pertinent instructional design information, and (b) to provide the user of the information with an understanding of just what instructional design elements each materials has (or does not have) provided in it. This is particularly important in regard to the relatively short ERIC resumes and for the ERIC abstractors who have to summarize a wide range of different kinds of documents and may not be primed to include some important instructional information. In addition, if such information is omitted from the document descriptions, then: (a) even with full-text computer searches of the database, some relevant documents may be missed because the information is not there to search on, and (b) if the document descriptions which come out in the search do not contain enough instructional design information about each product, the selectors may have to spend time and money for "hands-on" examination of a wide range of materials instead of being able to narrow the field first on the basis of document descriptions.

Coordination Across Systems

The 1977 Dissemination Forum recommended a nonprescriptive, multipurpose "nationwide dissemination configuration" to help educators "better understand the array of resources available to help them improve the educational system" through the cooperative efforts of a wide range of groups and individuals working to disseminate -- that is, to spread, exchange, and to facilitate the

choice (i.e., consideration and selection) and implementation of -- "ideas, materials, outcomes of research and development, effective educational practices, and other knowledge that can be used for the improvement of education."[44] In addition, complementary functions for governmental and other agencies at different levels were suggested.

For the area of career education, models of many of the main elements of such a configuration are already in place -- or very nearly so. One national center (NCCE) is set up to serve as an advocate for the post-1974 Office of Career Education approach to career education (see page 50) and is active in assisting users at all levels in the clarification, development, and implementation of programs as well as in the exchange of instructional materials. NDN and RDX, although not primarily concerned with career education, also offer to users in the field a number of fully developed career education programs, together with state and regional units to help arrange the means for review, selection, and (in the case of NDN) local implementation. The NNCCVTE provides a network of state and regional representatives who work with local school districts and other agencies to facilitate the sharing of curriculum development efforts and instructional materials (presumably some in career education) across regions and states. Although this network stresses vocational and technical more than other aspects of career education (especially since 1974), it does have access to many resources which are appropriate for career education in the broadest sense.

NCRVE (and RIVE, or AIM/ARM) is also focused primarily on vocational education but is set up to both carry out and to help users understand and share R&D outcomes, as well as to provide leadership training and information on instructional materials -- including those relevant to career education. As an affiliate of NCRVE (although sponsored by NIE), ERIC/CE is set up to both collect

and make available documents on all aspects of career education (including programs and materials from NDN, RDX, NNCCVTE, and -- potentially -- NCCE, as well as from many other school subject areas) and to help users identify relevant documents within the rest of the ERIC system.

Although the seven systems are not yet fully integrated, all claim to refer their users to the resources of all the other systems, where appropriate. But although most of the parts of a career education "dissemination configuration" have been developed, there remain many gaps and uncoordinated aspects to that configuration as it now operates. The result is that it is still difficult for the consumer, the user of the systems, to identify and acquire the information and services that may be neeeded -- or even to identify the system(s) which may be the sources of information and services. Some (if not most) of these gaps are traceable to the fact that at least five different federal agencies are involved: the Office of Career Education (NCCE), the Bureau of Occupational and Adult Education (NNCCVTE, NCRVE, and AIM/ARM), and the Bureau of Elementary and Secondary Education (NDN) - all under the U.S. Office of Education; the Dissemination and Resources Group of the National Institute of Education (ERIC and RDX); and the Department of Commerce (NTIS). Under present arrangements, some amount of competition among the systems and their sponsoring agencies (especially for funding) seems inevitable and optimum cooperation difficult to achieve. Some of the more obvious gaps in the configuration for career education are as follows:

(1) It is difficult for users to gain an understanding of what services the various systems offer, what relative costs and benefits are related to the use of each system, and what relationships there are among the systems. This means that many users (and potential users) are not receiving enough of the kinds of assistance the systems have been funded to provide.

(2) There is no one retrieval arrangement in which all of the documents in the seven systems -- and especially the instructional materials -- are indexed. Moreover, there is no retrieval arrangement, in or out of the seven systems covered in this study, in which the complete range of instructional materials, commercial and noncommercial -- federally supported or not, are indexed and described in order to give career education practitioners a full range of alternatives from which to select those best suited to local programs and students.

(3) Widely varying standards exist among the seven systems for screening and selecting instructional materials and other documents for inclusion in their databases. (For instructional materials, the range is from the locally produced materials in NCCE and the "fugitive" documents in ERIC to the R&D-based and JDRP-approved products of RDX and NDN.) Within each system, some standards have been developed, but these standards vary across systems, contributing to user confusion -- especially since the standards are not always made explicit to users.

(4) Different formats for describing instructional materials and other products are used by the various systems, making user comparisons of documents held in two or more systems difficult, although for research documents at least several systems have been using the ERIC format, and RIVE (AIM/ARM) uses the ERIC format for instructional materials.

(5) The views of, or approaches to career education which are implicit in the various systems and their products are not always (or often) made explicit to users, and users are not always helped to clarify their own views of career education, so that a good match between programs and products may occur more regularly.

Recommendations

In the light of the problems and gaps just identified, and the comparative analyses of the seven systems presented in earlier sections, the following recommendations are offered:

(1) In order to aid potential users in understanding just what kinds of information and assistance are available from the various career education (and related) systems, it is suggested that a Directory of Career Education Resources be published and kept up to date. This directory could be organized in a format similar to that used in Chapter II of this study, but with the addition of (a) statements describing the particular approaches to career education (to be included in the Intents/Purposes section), and (b) descriptions of the elements of career education listed on page 3 to 4 above (for the Contents section) that are represented in each system. Such a guide should also be expanded in scope to include other resources relevant to career education, such as those in career guidance (for example, the ERIC Clearinghouse on Counseling and Personnel Services, ERIC/CAPS), Teacher Centers, and sources of information on commerical instructional materials for career education programs.

(2) In order to keep career education visible and alive as a concept and process for enriching instructional programs while not being a separate subject area itself (such as mathematics, science or specific vocational technical courses, for example), it is suggested that the National Center for Career Education (NCCE), or some similar system specializing in career education, Kindergarten through grade 12 and beyond, receive continuing support as a national advocate for career education. Such an advocate would work to help educational (and other) agencies (a) to clarify their own needs and approaches in regard to career education, and (b) develop programs and instructional materials for use with their students and clients.

This could mean the continuation and further development of the NCCE Institutional Training Model (see page 14) where staff members of other agencies are trained to provide training in clarification and curriculum development, and the establishment of additional NCCE Affiliate Centers to provide such training -- perhaps including among these some of the regional and state units of NNCCVTE and RDX, as well as selected Teacher Centers and university-based agencies.

(3) In order to facilitate the nationwide sharing of instructional materials, information about instructional materials, and the matching of these materials to the needs and requirements of users, the following steps are suggested:

(a) A nationwide format for producing summary descriptions of instructional materials (preferably one patterned after the EPIE instructional design framework described on pages 63-65) should be adopted by the various systems and applied to both print and nonprint (e.g., filmstrips, films) materials.

(b) The format for describing instructional materials should be revisable on the basis of user feedback (much as the NCCE format is now) so that both the indexing descriptors used for retrieval and the summary descriptions banked in the computer can be altered, both for future use and retroactively.

(c) Provisions should be made for the inexpensive preview of instructional materials, patterned perhaps after the lending policies of some of the state and regional NNCCVTE units and NCCE, which might be expanded to supplement the ERIC Microfiche Collection centers and EDRS in the distribution of hardcopy documents.

(d) Uniform standards should be developed for use by career education information and assistance systems in their review of documents to be included in their databases, in order to insure some minimum level of quality across systems. Documents -- and especially instructional materials -- which did not meet minimum standards could be put through the process suggested next before being accessioned.

(e) Provisions should be made for the continuing development and refinement, on the basis of feedback from use with learners, of selected instructional materials -- especially those with the widest potential range of applications. This refinement process could be accomplished through inservice teacher training sessions in which materials are employed, and through feedback forms sent out regularly with materials that are disseminated.

Once refined, those materials which are component parts of units

of instruction in career education could then be entered into the common database for wider dissemination and implementation.

A first step in the implementation of these recommendations might be to have NCCE process all instructional materials received in the future by any of the systems (and determined to be up to minimum standards), while at the same time (a) making its computer tapes available (say, on a yearly lease basis) to other systems and agencies who wish to provide search and retrieval services, and (b) submitting copies of all the materials it recieves and processes to ERIC/CE for microfilming and inclusion in the Resources in Education index, so that potential users might have access to them through the ERIC system.*

Following this step, as the instructional design-type format used by NCCE becomes further refined as a result of its use by, and feedback from, users, the procedures for applying it to the description of instructional materials in career education could be taught to staff members of other systems through (say) a phase of the NCCE training program under the auspices of NNCCVTE and RDX state and regional units. In this way more people would be able to process and describe newly acquired materials for the nationwide network, and at least some of the materials already in the network could be re-described using the new format.

(4) In order to provide career education practitioners with a full range of available instructional materials, including commercial and noncommercial and federally funded or not, from which to make their selections for use in instructional programs, it is suggested that the production of a comprehensive compendium of all currently available materials be commissioned. This compendium should be updated periodically and should include both those materials specifically labeled as career education materials and those with career edu-

*Eventually, it would be useful, of course, to have the ERIC system revise its format for dealing with all instructional materials, but career education could serve as a pilot area.

cation relevance even though not so labeled.*

Suggestions for Further Study

Due to the limited nature of this study, a number of questions posed in the Scope of Work could not be treated as thoroughly as may be needed for the guidance of future policy. The main questions left at least partially unanswered have to do with: (a) the actual -- as opposed to intended -- users of the various systems, (b) the exact nature of the career education content of some of the systems -- particularly ERIC/CE, NNCCVTE, RIVE (AIM/ARM), and NTIS, and (c) the "utility of responses for the clients served," a question which borders on the "quality of services offered," which was outside the scope of this studied.

In order to supplement the findings of this study, it would be useful to do the following:

(1) In order to guide the development of policies and procedures for fostering the further improvement of ways of delivering information and technical assistance to career education practitioners, a rigorous comparative evaluation of the impact of the seven systems on their users should be carried out. Such an evaluation would analyze user experience with each system ranging from mere awareness of the system's existence, depth of understanding of what it contains, and whether actually used, through assessments of the service provided (efficiency, cost, time, etc.), to assessment of the quality of the information and assistance obtained (e.g., its goodness of fit with the needs that gave rise to the use of the system in the first place).

*The closest approximation of this recommendation to date is the EPIE Career Education S*E*T* (selection and evaluation tools)[43] which contains only very brief instructional design descriptions of commercial materials (plus a guide to the selection process) but does not include the unpublished materials that would be listed in ERIC/CE or NCCE.

Three studies which could be part of the comparative evaluation suggested above or done separately are:

(a) Analysis of records of users (mail correspondence files, telephone logs, etc.) of the various systems to determine what positions (e.g., teacher, career education director, etc.) are held by users requesting career education information and assistance and what kinds of such information and assistance they request;

(b) Survey a sample of career education practitioners and researchers to determine where they go for information and assistance, what (if anything) they know about the offerings of the seven systems, and what view of career education each one holds. Such a survey could help to determine just how many practitioners the present systems do (or could) reach.

(c) Carry out a comparative computer search of the databases of NCCE, ERIC/CE, and RIVE (AIM/ARM) to determine which documents (and document descriptions) are held in common. Such a search would not only help to answer the question of possible overlap more thoroughly, but would also be a good first step in trying to integrate the systems.

(2) Document systematically the extent to which career education -- especially in the sense of Self-Awareness, Educational Awareness, and Related Competencies, in addition to Career Awareness and Career Preparation (see pages 3-4) are reflected in the databases of various systems, especially those of the NNCCVTE regional and state units and NTIS.

(3) Survey samples of various kinds of career education practitioners to determine the kinds of information about instructional materials they would like to have in order to facilitate review and selection. In addition, a study comparing the selections made (and particularly their goodness of fit with local needs) could be made involving those using instructional design descriptions and descriptions produced in the formats of other systems such as ERIC/CE, RDX, and NNCCVTE.

Appendix I

List of Source Documents

Office of Career Education

1. Evans, Rupert N., Career Education and Vocational Education: Similarities and Differences. Monographs on Career Education, 1975.

2. Hansen, Lorraine, An Examination of the Definitions and Concepts of Career Education. Report prepared for the National Advisory Council on Career Education, 1977.

3. Hoyt, Kenneth, A Primer for Career Education, Monographs on Career Education, (n.d.)

4. _____, Refining the Career Education Concept. Monographs on Career Education, 1976.

5. _____, Refining the Career Education Concept, Part II. Monographs on Career Education, 1977.

6. _____, Relationships Between Career Education and Vocational Education. Monographs on Career Education, 1976.

National Center for Career Education

7. Barry, Vincent, "Career Education: A Definition and a Strategy." January 1, 1977.

8. _____, "National Center for Career Education, Inc. 1976-77: President's Report to the NCCE Board of Directors." June 14, 1977.

9. Final Report, July 1 1976 - June 30, 1977 (Dr. Vincent Barry, Project Director). Missoula, Montana, 1977.

10. An Initial Search and How to Use It. Missoula, Montana, (n.d.)

ERIC Clearinghouse on Career Education

11. Brown, James, and others, ERIC: What It Can Do for You/How to Use It, Revised edition. Stanford Center for Research and Development in Teaching, January 1977.

12. Directory of ERIC Microfiche Collections. ERIC Processing and Reference Facility, Bethesda, Maryland, January 1977.

13. How to Use ERIC. Central ERIC, National Institute of Education (n.d.)

14. Peterson, John C., and others, Information Resources for Education, First edition. ERIC/CE & Research Referral Service, Columbus, Ohio, 1977.

15. Peterson, Marla, and Robert Bhaerman, Memorandum describing ERIC/CE in response to original letter of inquiry, January 1978.

16. Pugh, Elizabeth, and others, Survey of ERIC Data Base Search Services. ERIC/NIE, June 1976 (Issue #2).

17. Request for Proposal, "The ERIC Clearinghouse on Career Education," 1976.

18. Resources in Education (RIE) - various issues.

19. Steiger, JoAnn M., Report and Guidelines on Improving the Retrieval of Product Information from ERIC, Final Report. Steiger, Fink, and Smith, Inc., October 1975.

20. Thesaurus of ERIC Descriptors, 7th edition. New York: Macmillan, 1977.

21. Tiedeman, David V., and others, Key Resources in Career Education: An Annotated Guide. ERIC/CE, DeKalb, Illinois, April 1976.

Research and Development Exchange

22. Lloyd-Kolkin, Donna, and others, "Transaction Log Report (March-November, 1977). System Support Service, RDX, Far West Laboratory, January 20, 1978.

23. "The R&D Exchange: An Emerging Effort," Revised draft. National Institute of Education, January 1978.

24. Brochures: "R&D Exchange" and "Resource and Referral Service."

25. Catalog of NIE Products, 2 volumes. National Institute of Education, 1975.

National Network for Curriculum Coordination in Vocation and Technical Education

26. Bureau of Occupational and Adult Education, "Impact of Curriculum Coordination Centers in 1975." February 1976.

27. Marks, Mary V., "A National Network for Meeting Vocational and Technical Instructional Needs." Technical Education News, October-November 1977, pp. 14-15.

28. Request for Proposal No. 78-3. "Vocational Education Curriculum Coordination Centers." U. S. Office of Education.

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Appendix II

List of Persons Contacted

National Center for Career Education

Dr. Vincent Barry, Director
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*Claudia Fahey, Data Preparation Supervisor

ERIC Clearinghouse on Career Education

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Dr. Joel Magisos, Associate Director, Information and Field Services Division, National Center for Research in Vocational Education
Dr. Robert Bhaerman, Career Education Specialist
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Research and Development Exchange

Dr. Larry Hutchins, (formerly) Director, School Practices and Services Division, National Institute of Education
*Morton Bachrach, Manager, National Institute of Education
*Dr. Susan Klein, Manager, National Institute of Education
William L. Hull, Research Specialist (Resource and Referral Service), Center for Vocational Education

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National Center for Research in Vocational Education

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*Marshall Schmitt, Senior Program Officer, Bureau of Elementary and Secondary Education
*Diane McIntyre, Project Director, ED/Materials Support Service, Far West Laboratory
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National Technical Information Service

Dr. William Knox, Director
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* -indicates main contact person/s: system director or person/s designated by the director.

Appendix III

A Comparison of Career Education Information and Technical Assistance Systems

Scope of Work

Considerable efforts have been launched to provide career education practitioners and researchers with up-to-date information and assistance about materials, training strategies, research projects, and other career education activities. The major national systems providing such help are the following: The ERIC Clearinghouse on Career Education; the RDX program of NIE (as applied to career education); AIM/ARM; the National Center for Career Education; the National Network for Curriculum Coordination in Vocational and Technical Education; the National Technical Information Service (DOL); and a soon-to-be awarded contract for a National Center for Research in Vocational Education.

Because of the large number of such assistance systems, questions have been raised by both practitioners and policymakers about the specific services offered by each, possible overlap of services, and/or possible ways to more effectively coordinate the services offered.

The purpose of this paper will be to: (1) Describe the specific services offered by each of the above-referenced systems, including (but not limited to): content of each system; services offered; clients served; procedures for use; cost for each service; service area (geographic); response formats; response time; and utility of responses for clients served; (2) Compare and contrast the various systems in terms of the items in (1) above; and (3) make recommendations on issues to be resolved and steps to be taken to assure maximum coordination and minimum overlap among these various systems.

Due to the limited nature of this award, the contractor will not be asked to evaluate the quality of services offered, although use of existing data which may reflect on quality is certainly allowable.